THE
WORKES
of that famous
Chirurgion
Ambrose Parey
Translated out of
Latine and compared
with the French.

by
Th. Venion.

London,
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Anno 1634.
To The Reader.

I have here for the public like good taken pains to subject myself to common censure, the which I doubt not but to finde as various as the faces of the Censurers; but I expect no thanks, nor hunt after other praise, than that I have laboured for my Country, good, if that deserve any. I fear not Calumniation (though sure to hear of it) and therefore I will not Apologize, but informe thee of some things concerning the Author his work, and the reason that induced me to the translation thereof, with some few things besides. For the Author, who was principall Surgeon to two or three Kings of France, he was a man well versed in the writings of the ancient and moderne Physitian, and Surgeons, as you may evidently finde by places alleg'd in his works. For his experience, or practice (the chief help to attain the highest perfection in this Art) it was wonderfull great, as you may collect by his voyages recorded in the last part of this work; as also by that which James Gentlemen, Surgeon to the French King, a man both learned and judicious in his profession, swerres, speaking of his owne education and progresse in the Art of Surgery. He said (as faith he) the first foundation of this Art in the Hospital of Paris, being, as it were, an ample Theater prefixed before of wounds and diseases of all kinds, that for two whole yeares, during which time I was conversant, nothing was consulted of, nothing performed, the Physitians, and Surgeons being present, whereas I was not an Auditor or Assister. There flourished at these times, and yet both, Ambrofe Paré, principall Surgeon to the most Christian King, the Author of this great worke, most renowned for the gracious favour of Kings, Princes and Nobles towards him, for his Authoritie amongst his equals, for his Chirurgical operations amongst all men. Therefore I earnestly endeavoured to be received into his family, as unto another Macheten, or Pedalittis; once admitted, I fo by all dutifullyse and due respect acquired his favours, that he, unless I were present and assisting, did nothing (such is his natural gentlenesse and curtesie) at home or abroad, in the field, in the tents, or lastly in this famous City of about the bodies of Dukes, Noblemen, or Citizens, in whose curse, he by the ardent desire of them all, had fill the prime place.

Now for this work, heare whase this famous man in the fame place afoithmeth further: I not content with these meanes, which may (emes sufficient, and too much, as devious to satisfy my long thirst, determined to try whether I could draw, or borrow any thing from strangers, which our men wanted, to the fuller knowledge of Surgery. To this purpose I travailed over Germany, and then for four years space I followed the Spaniſh Armie in the Low-countries; whereas I did not onely carefully cure the wounded Soldier, but also heedfully and curiously observe what way of curing the renowned Italian, German, and Spaniſh Surgeons observed, who together with me were employed in the Hospital, for the healing of the wounded and sick. I observed them all to take another course than that which is there delivered by Paré. Such as did not understand French, got some pieces of this worke for large rewards, turned into Latin, or such languages as they understood, which they kept charily, and made great store of; and they esteemed, admired, and embraced this worke alone, above all other works of Surgery, &c. Our Author also himſelfe, not out of a vain-glorious ostentation, but a misleſſe confidence of the truth of his Assertion, affirſes thus much of this his worke. I have (faith he) to certainly touch the marke whereat I aimed, that Antiquity may faie to have nothing wherein it may exceed us, besides the glory of invention, nor pettery anything left, but a certaine small hope to addde some things, as it is easie to addde to former inventions. Thus much concerning our Author, and the excellency of his worke.

Now come into my translation, the which, as defining more a public like good, than private praise, I have performed plainly and honestly, laboring to fit it to the capacity of the meanest Artist; for these are they to whom I chiefly commend this work, and from whom I expect acceptance. I being by the earnest perfections of some of this profession, chiefly, and alm
To the Reader.

mull wholly perverted and incited to take this pains, who knowing the disability of under- standing this Author in Latin or French, in many of the weaker members of the large body of their profession, dispersed over this kingdom, and the rest of His Majesties Dominions, with great good, and encreas in knowledge may be with, that they may be the better enabled to do good to such as shall implore their aid in their profession.

There are some (I know) will blame me for Englishing this workes, as laying open the mysteries of a worthy Art, to the unworthy view of the vulgar. To which I could answer as

* Aristoteles did to Alexander: but for the present I will give them theke, which I thinke may satisfie any but the purposely malicious: the first is drawn from the goodness of the thing, as intended for those that want such guides to direct them in their Art; for it is commonly granted, that, Bowme quo communissimo eos melius. Secondly, it hath beene the custom of most Writers in all Ages and Countries thus to doe: Hippocrates, Gala, and the other Greeks, writ in their mother tongue the mysteries of their Art: thus did Celsius, Serenus, and others in Latine; Asystor, Serapion, and others, in Arabick: as alio, to goe no further, our Author writ this work in his native French, and learned men have done the like in this, and all other Arts. And it is great hinderance to us in these daies, that we must bee forced to learn to understand two or three tongues, before we can learn any science, whereas the Antients learned and taught theirs in their mother tongue: so that they spent a great deal of time about words, and more upon the study of that Art or Science they intended to learn and follow. Thirdly, I must tell you, that, Ex libris nemo est. For no man becomes a workeman by booke: so that unless they have had some insight in the Art, and bee forced to learn to understand two or three tongues, before we can learn any science, whereas the Antients learned and taught theirs in their mother tongue: so that they spent a great deal of time about words, and more upon the study of that Art or Science they intended to learn and follow. Thirdly, I must tell you, that, Ex libris nemo est. For no man becomes a workeman by booke: so that unless they have had some insight in the Art, and bee forced to learn to understand two or three tongues, before we can learn any science, whereas the Antients learned and taught theirs in their mother tongue: so that they spent a great deal of time about words, and more upon the study of that Art or Science they intended to learn and follow.

The other things whereof I must also give you notice, are these. The figures in the Anatomy are not the same used by my Author (which were according to those of Palaearius) but according to those of Sanson, which were used in the works of Dr. Crooke; and these indeed are the better and more complete. Also Page 807. I thought it better to give the true figure of the Helmet scourd Acute, mentioned out of Pliny, than to refere the fig- ure picture of Mathibus, which in our Author was encrusted with the further fiction of a red picture of Mathibus, which in our Author was encrusted with the further fiction of a

Helmet. I have in some few places in the margin, which you shall find marked with a star, put short annotation, for the better illustration of that which is obscure, &c. I have also in the Text to the same purpose, here and there put two or three words, contained in the leaf limits [ ], which I finde here and there turned into a plaine Parenthess, especially toward the latter end of the booke, but the matter is not great. Further, I must acquaint you that the Apologie and Voyages, being the last part of this workes, and not in the Latin, but French editions, were translated into English out of French by George Baker, a Surgeon of this City, since that time, as I hear, dead beyond the Seas.

This is all, Courteous Reader, that I have thought necessary to acquaint thee withal concerning this, which I would desire thee to take with the same minde that it is presented to thee, by him that wiseth thee all happiness.

Thomas Johnson.
To Henry the third, the most Christian King of France and Poland.

Ven as (most Christian King) we see the members of man's body by a friendly consent are always bustled, and stand ready to performe those functions for which they are appointed by nature, for the preservation of the whole, of which they are parts: so it is convenient that we, which are, as it were, Citizens of this earthly Common-wealth should be diligent in the following of that calling which (by God's appointment) we have once taken upon us: and content with our present estate, not carried away with rages and envy, desire different and divers things whereof we have no knowledge. He which doth otherwise, perverts and defiles, with hated confusion the order and beauty on which this Univers consists. Wherefore when I considered with my self, that I was a member of this great Mundane body, and that not altogether unprofitable, I endeavored earnestly, that all men should be acquainted with my duty, and that it might be known how much I could profit every man. For God is my Witness, and all good men know, that I have now laboured fifty years with all care and painses in the illustration and amplification of Chirurgery, and that I have so certainly touched the mark whereat I aimed, that Antiquity may seeme to have nothing wherein it may exceed us, beside the glory of invention, nor posterity any thing left but a certaine small hope to add some things, as it is easie to add to former inventions. In performance whereof, I have beene so prodigall of my selfe, my watchings, faculties and meanes; that I spared neither time, labour, nor cost, whereby I might satisfy and accomplish my own desires, this my great work, and the desires of the studious. Neither may we doubt but their studies would at the length waxe cold, if they only furnished with the Theorickke and Precepts in Schooles, and that with much laboure, should see no manuell operation, nor manifest way of performing the Arte. For which cause I seeking the praise and profit of the French Nation, even with the hinderance of my particular estate, have endeavored to illustrate and increase Chyrurgerie bitherto obscure either by the infelicity of the former.
The Authors Epistle Dedicatory.

former ages or the envy of the Professors; and not only with precepts and rules, but being a lover of carved works I beautified it with 200 figures, or graven figures, and apt delineations, in which whoever shall attentively look shall find five hundred anatomical or organicall figures belonging to the Arte, (if they be reckoned particularly). To every of these I have given their names and showed their use, least they should seeme to have beene put in vainly for ostentation or delight. But although there be few men of this profession which can bring so much authority to their writings either with reason, or experience as I can; notwithstanding I have not beene so arrogant, but intending to publish my worke, I first communicaed it with men the most excellent in the Arte of Phisicke, who gave me greater encouragement to perfect and publish it, that it might be in common use: professing they wished nothing more, than that it might be turned into Latine, so by which means it should be knowne to foraign Nations, that there is no kind of Learning which is not delivered with great dexterity of Wit in this kingdome over which you rule. And thus much I dare boldly affirme, that there is scarce any, be he never so stately or supercilious, but that he may here find something which may delight him, and by which he may better his knowledge. Therefore I doubted not to consecrate this booke unto your Majestie both as a Pattern and treasury of my labours as well in respect of my duty, who am yours by nature and education, as that I might manifest to all your Highnes exceeding bounty towards me, in placing me (having heretofore enjoyed the office of principal Chirugeon under 3 Kings your Majesties predecessors) in the same dignity, and that of your owne accord. And moreover I did conjecture that it would fall out, as now it doth, that this my worke carried through the world by the fame of your Majestie name should neither fear the face nor view of any, supported by the favour and Majestie of a most invincible Monarch and most excellent and renowned Prince. Neither did King Charles the ninth of happy memory, incited by the relation of the most gracious Queen his Mother, refuse to read it, being he understood it proceeded from him, who having happily past all his time in private and publick employments, and conversed with all men of all sorts, was judged most worthy to obtaine this favour, as to have the front of this worke adorned and beautified with the splendor of his prefixed name. I encouraged by this hope, desired that my request should passe as by a certaine continuation and succession from a most powerful, to a most invincible King; and that I would consecrate these my labours taken for my Country, good unto your sacred Majestie. God grant that your Majestie may have happy success of all your enterprizes abundantly added to Nestors yeares.


Your most Christian Majesties
faithfull Servant,

Andre Pavy.
Oft men derive the Original of Physicke from heaven; for those who hold the best opinion of the Creation of the world, affirm, the Elements being created and separated each from other, man being not as yet made; incontinently by the divine decree, all herbes and plants with infinite variety of flowers, endowed with various kinds, tasts, colours and forms, grew and sprung forth of the bowells of the Earth, enriched with so many and great vertues, that it may be thought a great offence to attribute to any other than the Deity, the benefit of so great a blessing so necessary for so many uses. Neither could Mans Capacity ever have attained to the knowledge of those things without the guidance of the divine power. For God the great Creator & fashioner of the world, when first he inspired Adam by the breath of his mouth into a living and breathing man, he taught him the nature, the proper operations, faculties and vertues of all things contained in the circuit of this Univerfe. So that if there be any who would ascribe the glory of this invention to man, he is condemned of ingratitude even by the judgment of Pliny. But this knowledge was not buried in oblivion with Adam: but by the same gift of God was given to those whom he had chosen and ordained for Physicke, to put their helping hands to others that stood in need thereof. Which opinion was not only received in the common manner and by the tacite consent of all Nations, but confirmed by Moses in the Scripture. Which thing Jesus the Sonne of Strach the wisest amongst the Jews, hath confirmed saying; Honor the Physition with the honor due unto him, for the most High hath created him because of necessity: and of the Lord commeth the gift of healing. The Lord hath created Medicines of the Earth and he that is wise will not abhorre them. Give place and honor to the Physition, for God hath created him, let him not goe from thee, for thou hast need of him. The Grecians who first seeme more fully and with greater fame to have professed the Arte of Physicke, doe in a manner consent with this opinion, in acknowledging Apollo to have beene the Inventor thereof, neither did they it without a reasonable caufe. For whether by Apollo they may understand the Sun who by its gentle and vital heat doth bring forth, temper and cherish all things; or else some Hero, who incited by an excellent and almost divine understanding
The Preface.

First taught and put in practice the Medicinal virtues of Herbs; in which sense Ovid brings him in speaking thus:

"Herbs are of mine invention, and through all the world, they me the first Phisitian call.

The original of Phisick arising from those beginnings shall always be celebrated, as celestial, and was increased principally after this manner. After Apollo, Æsculapius his sonne instructed by his father reduced this Arte being as yet rude and vulgar into a little better and more exquisitely forme, for which cause he was reputed worthy to be accounted as one of the Gods. At the same time flourished Chiron, the Centaur who for that he excelled in knowledge of Plants, and taught Æsculapius, (as many report) their faculties, is thought by Pliny and some others to have bin the inventor of Phisick. Æsculapius had two sons Podalirius and Machaon who following their fathers steps & professing Phisick, did principally beautifie and practice that part thereof which is called Chirurgery, and for that cause were accounted the Inventers thereof. After those Æclepiades left this Arte much enlarged as hereditary to his posterity; by whose study and diligence, that part of the Arte was invented and annexed, which by a more curious skill searcheth out and cureth those diseases which lyeth hid within the body. Hippocrates the Com the fon of Heraclidas, borne of the noble race of Æclepiades, Prince of the Phisitians that were before him, perfected Phisick and reduced it into an Arte and wrote divers booke thereon in Greeke. Galen succeeded him six hundred years after, who was a man most famous not only for his knowledge in Phisick, but also in all other sciences, who faithfully interpreting everything that was obscure and difficult in the writings of Hippocrates, enlarged the science with many volumes. Thus therefore was the beginning, thus the encrease and perfecting the Arte of Phisick, as much as can be hoped for from men's industry. Although indeed we cannot deny but that Experience hath much profited this Arte, as it hath and doth many other. For as men perceived that some things were profitable, some unprofitable for this or that disease, they let it downe, and so by diligent observation and marking of singularities, they established univerall and certaine precepts and so brought it into an Arte. For so we find it recorded in ancient Histories, before the invention of Phisick, that the Babylonians & Assyrians had a custome amongst them, to lay their sick and diseased persons in the porches and entries of their houses, or to carry them into the streets and market places, that such as passed by and saw them, might give them counsel to take those things to cure their diseases, which they had formerly found profitable in themselves or any other in the like affairs, neither might any passe by a sick man in silence. Also Strabo writes that it was a custome in Greece that those which were sick should resort to Æsculapius his Temple in Epidaurus, that there as they slept, by their dreams they might be admonished by the God

what
what means they should use to be cured; and when they were freed from their diseases, they wrote the manner of their infirmities and the means by which they were cured in tables & fastned them to the pillars of the Temple, not only for the glory of the God, but also for the profit of such, as should afterwards be affected with the like maladies. All which tables (as some reports) Hippocrates transcribed, & so from those drew the Arte of Physick. Beasts also have added much to this Arte. For one man was not only instructed by another, but learned also much from brute beasts, for they by the only instinct of nature have found out divers herbs, & remedies, by which they freed & preferred themselves from infirmities, which might formerly be transferred to mans use. Wherfore considering that such & so many have occurred to bring this Arte to perfection, who hereafter dare call in question the excellency thereof; chiefly if he respect the subject thereof, mans body, a thing more noble than all other Mundane thing, and for which the rest were created. Which thing moved Herophilus in times past to call Physicians the hands of the Gods. For as we by putting forth our hand, do help any man out of the water or mud into which he is fallen: even so we do sustaine those that are thrown downe from the top of health to the gates of death by violence of diseases, with happy medicines, & as it were by some special & divine gift deliver them out of the jaws of death. Homer the prince of Greek Poets affirmes that one Physician is far more worthy than many other men. All Antiquity gave Physicians such honor, that they worshipped them with great veneration as Gods, or the sons of their Gods. For who is it which is not much delighted with the divine force of healthfull medicines, with which (we see by dayly experience) Physicians, as armed with Mercury’s rod, do bring back those languishing soules which are even entering the gates of death? Hence it cometh to passe that the divine Poets of ancient times, as Orpheus, and Musaeus & Hesiod: & the most renowned Philosophers, Pythagoras, Plato, Aristotle, Theophrastus, Chrysipus, Cato Censorius, & Varro esteemed nothing more excellent than to excell in the knowledge of Medicines, & to receive the fame by written monuments to Posterity. For what can be more noble or worthy of a generous disposition than to attaine to that by the benefit of Physick, that adorned with the ornaments of dignity thou maieft have power over other men, & favoured of Princes, Kings & Emperours, mayest appoint & prescribe to them those things which are profitable to preserve health, & cure their diseases? But if you look for benefit by sciences; then know that the Professors hereof have besides sufficient gain, acquired much honor & many friends. Hippocrates comming to Abdera to cure Democritus of his madness, not only the men of the City, but also the women, children & people of every age, sex & rank went forth to meet him, giving him with a common content & loud voice the title of a Testal Deity and father of their Country. But the Athenians, for freeing their Country from the plague, with triumph...
The Preface.

phant pompe celebrated plays to his honor, & bountifully set upon his head as if he had beene a king, a Crowne of gold weighing 1000 pieces of their golden coine, & erected his statue, for a perpetuall monumet of his piety and Learning. Erasistratus the Nephew of Aristotle by his daughter, received, freely given him by Ptolomy king of Egypt, for the cure of his son, 100 Talents of gold. The Emperor Augustus honored Antinous Mya with a golden statue. Quintus Stertinmus yearly received out of the Emperor's Treasury 10000.500. pieces of gold. In the time of our Grandfathers Petrus Apometus called Conciliator was so famous through all Italy for his knowledge in Phisick, that he could scarce be intreated to come to any man of fathis that was fick, unles he gave him 50. crownes, for every day he was absent from home: but when he went to cure Honorius the Bishop of Rome, he received 400. crownes for every day he was absent. Our French Chronicles relate in what credit & estimation James Cotterimus the Phisitioner was with Lewis the 11. King of France, for they report he gave him monethly out of his Treasury 10000. crownes. Phisic in times past hath bin in such esteem with many famous & noble perfonages, that divers Kings & Princes delighted with the study thereof, & delirious to attaine glory & credit thereby, called fundry herbs after their own names. For fo Gentian took its name of Gentian king of Jlyria, the herb Lythamachia of Lythamachus the king of Macedon, the Mithridateck herb or Scordium, of Mithridates the king of Pontus & Bithinia, Achilles of Achilles, Centorius of Chiron the Centaure, Arthemius of Arthemisia the Queen of Caria, Attalus king of Pergamus, Solomon of Judea, Evas of Arabia, and Juba the king of Mauritania, were not only inflamed with a defire of the knowledge of plants, but either they have writte books of it, or for the great commodi of pofterity, invented by their skil many choife Antidots compounded of divers simples, neither the defire of learning this noble science is yet altogether extinct. As may appear by that indi plant Tobaco, called by some the noble herb, Catherine herb & Medices herb, but commonly the Queens herb, because Catherine Medices the mother of our kings, by her singular study and industry made manifest the excellent virtue it hath in curing maligne ulcers & wounds, which before was unknown to the French. For these worthy men understood that their glory, thus fastened & ingrafted into the deepe, & as it were everlasting roots of plants, would never decay, but should be propagated to al pofterity in many succeeding ages, growing up with their sprouting & budding flowers, stalks, flowers & fruits. Neither did these famous men whilf they adorned this part of phisick suffer the other, which treats of the dislectio of mans body, be buried in oblivion, & without their knowledge, as instructed with the precepts & learning of the wisest men, how artificiall & unimitable by mortall hand this fabric of our body is. Neither is it probable that Apis, Osiris and Ptolomy kings of Egypt, Solomon, Alexander the great, Mithridates, Attalus, seeing they dedicated themselves wholly to the contempltation of nature.
natural things; neglected the use of Anatomic, & being men most de-

firous to know themselves, to have beene ignorant of the structure of
there own bodies being the habitations of their soules inmortal &
made to the Image of God: seeing they observed with certaine judg-
ment the different lights of the Sun, Moone and stars; and passed over
so many lands, so many seas, so many regions so far remote one from
another, by waies so terrible by reason of cold, uncouthnes, darknes, by
rocks, by fire & sword, with great labour, charge & danger of life, only
that they might satisfy their minds thirsting after the knowledge of
things, and to have left untouched a thing truly noble, admirable, and
most worthy of knowledge, easy to be attained by any, and to be ac-
quired without any danger of life, or fortunes.

Seeing there be 5 parts of that Phisick which at this time we profess,

Chirurgery which by the use of the hand, Diet which with a convenient
manner of feeding & ordering the body, & Pharmacy that by medicines
attempt to expell diseases; & preserve health, The prime Phisitions do
not without reason contend which of these may be accounted the
cheife. Certainly Herophilus had Pharmacy in such esteem, that he thought
medicines were first mixed & administred to the sick by Aspho (whom
Antiquity thought a great Deity.) And Pliny had so good an opinion
of Diet, that he exclaims; The true remedies & Antidotes against dis-
cases are put into the pot & eaten every day by the poor people. Verily
all learned men confess that the manner of curing which is performed
by diet, is much more facile & prosperous than that which is done by
medicines, as those things which sought with much labour and cost,
at times are scarce retained but retained they oft work with much labour & paine: Which things long ago moved Asklepiades to exclude the use of medicines, as hurtfull to the
 stomach. Yet if we believe Celsus neither of these parts merit the
preeminence, but both of them give place to Chirurgery. For being that
fortune is very powerfull in diseases, & the same Meats & Medicines
are often good & often vaine, truly it is hard to say, whether the health
is recovered by the benefit of Diet and Pharmacy, or by the strength of
the body. Moreover in those cases, in which we most prevale with
medicines, although the profit be more manifest, yet it is evident that
health is often sought in vaine even by these things, & often recovered
without them. As it may be perceived by some troubled with sore eyes,
& others with Quartaine feavers, who having bin long troubled by
Phisitics are sometimes healed without them. But the effect of Chir-
urgery as it is very necessary, so it is the most evident among all the parts
of phisique. For who without Chirurgery can hope to cure broken, or
laxated parts, who wounds & ulcers, who the falling of the Matrix, the
stone in the bladder, a member infested with a Gangrene, or Sphacel;
besides, this part also is the most ancient; for Podalirius & Machaon fol-

Phisics is de-
ned into 3

parts.
The Preface.

Small comfort to their fellow Soldiers. Whom notwithstanding Homer affirms not to have given any help in the pestilence, nor in divers other diseases, but only were accustomed to heal wounds by instruments and medicines. And if the difficulty of learning it argue the excellency of the Arte, who can doubt but Chirurgery must be the most excellent, seeing that none ought to be accounted a Chirurgeon or which can performe his duty, without the knowledge of Diet & Pharmacy? But both the other can performe their parts without Chirurgery if we may believe Galen. But if we consider the matter more nearly according to truth, we shall understand those three parts have a certaine common bond, and are very near of kinred, so that the one implores the ayde of the other; neither can the Phisition doe any thing praiseworthy without the conspiracy and joint consent of these three; therefore in ancient times there was but one performer and user of all the three parts. But the multitude of men dayly increasing, and on the contrary man's life decreasing, so that it did not seeme able to suffice for to learne and exercise all the three, the workmen devided themselves. Wherefore that which happens to any man either by lot, or counsell, that let him follow, maintaine and only use, as mindful how short his life is, and how long the Arte.
A Catalogue of the Workes of

AMBROSE PAREY, the King of France his
Chief Chyrurgion, which were set forth in
Latine, by James Guillemeau.

1. An Introduction, or compendious way to Chirurgery.
2. Of living creatures and mans excellency.
3. Of the Anatomy of mans body.
4. Of the vital parts contained in the Chrift.
5. Of the Animal parts placed in the head.
6. Of the Muscles and Bones, and other extreme parts of the body.
7. Of Tumors contrary to nature in general.
8. Of Tumors contrary to nature in particular.
10. Of the green and bloody wounds of each severall part.
11. Of wounds made by Gun-shot, and other fiery Ensigns, and all sorts of weapons.
12. Of Contusions and Gangrenees.
14. Of Ligateures, or Bandages.
15. Of Fractures.
17. Of diverse affefts of the parts no agreeable to nature, whose cure commonly is performed by the hand.
18. Of the Gout.
19. Of the Lues Venerea, and those Symptomes that happen by reason thereof.
20. Of the small Poxes and Measles and also of Wormes, and the Leprosie.
22. Of the Plague.
23. Of the Arts to repair those things which are defective, either by nature or accident.
24. Of the generation of Man.
26. Of the Faculties of simple medicines, together with their composition and use.
27. Of Distillations.
28. A Treatise of Reports, and the embalming of dead bodies.
29. An Apologie, and Voyages, being not in the Latine, but translated out of the last French Edition, whom also I have followed in the number of the Bookes, lest any should thinke some wanting, finding but 26. in the Latine, and 29. in the French.
Chapter I.

What Chirurgerie is.

Chirurgerie is an Art, which teacheth the way by reason, how by the operation of the hand we may cure prevent and mitigate diseases, which accidentally happen unto us. Others have thought good to describe it otherwise, as that it is that part of Physicke which undertaketh the cure of diseases by the sole industry of the hand; as by cutting, burning, sawing off, uniting fractures, restoring dislocations, and performing other workes, of which we shall hereafter treat.

Chirurgery also is thus defined by the Author of the medicinal Definitions; The quicke motion of an intrepid hand joined with experience; or an artificial action by the hands used in Physicke for some convenient intent. Yet none must think to attain to any great perfection in this Art, without the help of the other two parts of Physicke; I say of Diet and Pharmacie, and the divers application of proper medicines respecting the condition of the causes, diseases, symptomes, and the like, circumstances, which comprehended under the names of things natural, not natural, and besides nature (as they commonly call them) wee intend to describe in their proper place. But if any reply, that there be many which doe the works of Chirurgery, without any knowledge of such like things, who notwithstanding have cured desperate diseases with happy success; let them take this for an answer, that such things happen rather by chance, than by the industry of the Art, and that they are not provident that commit themselves to such. Because that for some one happy chance, a thousand dangerous errors happen afterwards, as Galen (in divers places of his Method) speakes against the Empirickes. Wherefore we have followe Chirurgery to bea diligent operation of the hands, strengthened by the assistance of Diet and Pharmacie, wee will now shew, what, and of what nature the operations it are.
The nature of a Chirurgion.

Experience makes a Chirurgion wise, and Art.

Examples of taking away that which is superfluous.

Examples of replacing.

Examples of uniting things separated.

Examples of separating things joined together.

Examples of displacing things.

Examples of filling up deferts.

We have examples of taking away that which abounds, in the amputation, or cutting off a finger, if any have lain on one hand, or any other membranous member that may grow out in the lopping off a purified part inwardly corrupted; in the extraction of a dead child, the condyloid, mole or such like bodies out of a woman's womb; in taking down of all Tumors, as Wens, Warts, Polypos, Cancers, and fibrous excrements of the like nature, in the pulling forth of bullets, of pieces of mail, of darts, arrows, fishels, splinters, part of all kind of weapons in what part of the body foever they be. And he taketh away that which redounds, which plucks away the hairs of the eye-lids which trouble the eye by their turning in towards it: who cuts away the web, possetting at all the * Adnate, and part of the * Cornes: who lets forth imputured matter; who taketh out flames in what part ofer the body they grow: who pulls out a rotten or otherwise hurtful tooth, or cuts a nail that runs into the flesh; who cuts away part of the * Ulna, or hairs that grow on the eye-lids; who taketh off a * Catarrh; who cuts the navil or fore-skinne of a child newly borne, or the skinny caruncles of women's privities.

Examples of placing things which are out of their natural fire, are manifest in restoring dislocated bones; in replacing of the guts and all fallen into the ceds, or out of the navil or belly by a wound, or of the falling downe of the wombbe, fundament, or great gut, or the eye hanging out of its circle, or proper place.

But we may take examples of dijoyning those things which are continued from the fingers growing together, either by some chance, as burning, or by the imbecilitie of the forming facultie: by the disjunction of the membrane called Hymen, or any other troubling the necte of the wombe, by the disjunction of the ligament of the tongue, whichinders children from sucking and speaking, and of that which hindres the * Glans from being uncovered of the foreskinne, by the devision of a varicous vein, or of a halfe cut nerve or tendon, causing convulsion by the division of the membrane flogging the auditory passage, the nose, mouth, or fundament, or the stubborne ticking together of the hairs of the eye-lids. Referre to this place all the works done by Cauickes, the * Silor, * Tropan, * Lancet, * Cuppinggalle, * Incision Knife, * Leaches; either for evacuation, derivation or revulsion fakowane.

The Chirurgion drawes together things seperated, which healthe wounds by stitching them, by holifering, binding, giving resto, and placing the parts which repaires fractures, restores luxated parts, who by binding the vesse, sticke the violente effition of blood: who cicatrizeth cloven lips, commonly called hare-lips, who reduces to cqualicie the cavities of Vlcers, and Fistula's.

But hee repaires those things which are defective, either from the infancy, or afterwards by accident, as much as Art and Nature will suffer, who fets an eye, a nose, one or more teeth; who fills the hollowneffe of the palat eaten by the Foxe, with a thine plate of gold or silver, or such like; who supplies the defect of the tongue in part or all; by some new addition, who fatteneth to a hand, an arme or legge with the ligaments worken alike, who fits a doublet bumbasted, or made with iron plates to make the body straight, who fills a boose too big with corke, or fastens a flcocking or focke to a lame mans giardelo to help his gate. We will create more fully of all these in our following Worke. But in performing those things with the hands, we
we cannot but cause paine: (for who can without paine cut off an arm, or legge, devide and teare asunder the nekke of the bladder, restore bones put out of their places, open ulcers, bind up wounds, and apply cauteries, and doe such like) notwithstanding the matter often comes to that paffe, that unleffe we use a judicious hand, wee must either die, or loose the remnant of our lives in perpetuell milery. Who therefore can fluilly abhorre a Chirurgion for this, or accuse him of crueltie: or desire they may be servd as in ancient times the Romanes servd Archagathus, who at the first made him free of the Citie, but presently after, because he did somewhat too cruelly burne, cut and performe the other workes of a good Chirurgion, they drew him from his heufe into the Campus Martius and there Stoned him to death, as wee have read it recorded by Sextus Claudius Pintarchus Nece by his daughter. Truly it was an inhumane kind of ingratitude: so cruelly to murder a man intent to the workes of so necessary an Art. But the Senate could not approve the act, wherefore to expiate the crime as well as then they could, they made his Statue in gold, placed it in Aesculapius his Temple and dedicated it to his perpetuall memorie. For my part I very well like that saying of Cellius: A Chirurgeon must have a strong, stable, and intrepid hand, and a mind resolute and mercifull: so that to heale him he taketh in hand, he be not moved to make more haft than the thing requires: or to cut leffe than is needfull: but which doth all things as if he were nothing affeeced with their cries: not giving heed to the judgement of the vaine common people, who speake ill of Chirurgions because of their ignorance.

CHAP. III.

Hat the Chirurgion may rightly and according to Art, performe the foreaed workes, he must set before his eyes certaine Indications of working; otherwise he is like to become an Empereurick, whom no Art, no certaine reason, but onely a blind temerity of fortune moves to boldneffe and action. These Indications of actions are drawn from things (as they call them) naturall, not naturall, and besides nature, and their adjacents, as it is singularly delivered of the Ancients, being men of an excellent understanding. Wherefore we wil profecute according to that order, all the speculation of this Art of ours. First therefore things naturall are termed, because they confiruite and containe the nature of mans body, which wholly depends on the mixture and temperament of the four first bodies, as it is shewed by Hippocrates in his Booke de Natura humana: wherefore the confideration thereof belongs to that part of Physicke which is named Physiologia, as the examination of things not naturall to Dietetics, or Diet, because by the use of such things it intendes to retaine and keepe health, but Therapeutics or the part which cures the diseas, and all the affeets besides nature, challenges the contemplation of those things which are not agreeable to nature. But the things which are called naturall may be reduced to seven heads: besides which there comes into their fellowship, those which wee terme annexed.

The seven principall heads of things naturall are,

|-----------|--------------|--------|-----------------|-----------|---------|--------|

To these are annexed and somewhat necesse.
An Introduction, or Compendium

CHAP. III.

Of Elements.

What an Element is.

Elements are understood not by name, but by

Two principal qualities are in each Element.

Why the Air heats not to venemently, as the Fire.

Names of the substances:

<table>
<thead>
<tr>
<th>Elements</th>
<th>Names of the qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>Hot and drie.</td>
</tr>
<tr>
<td>Water</td>
<td>Cold and moif.</td>
</tr>
<tr>
<td>Aire</td>
<td>Moif. and hot.</td>
</tr>
<tr>
<td>Earth</td>
<td>Cold and drie.</td>
</tr>
</tbody>
</table>

These foure Elements in the composition of natural bodies, retain the qualities they formerly had, but that by their mixture and meeting together of contraries, they are somewhat tempered and abated. But the Elements are so mutually mixed one with another, and all with all, that no simple part may be found; no more than in a malle of the Empalmer Diseased you can finde any Awnings, oyle, or lathedge by it selfe; all things are so confused and united by the power of heathe, mixing the smallest particulars with the smallest, and the whole with the whole, in all parts. You may know and perceive this concretion of the foure Elementary substances in one compound body, by the power of mixture, in their dissolution by burning a pile or heap of greene wood. For the flame expresseth the Fire, the smoke the Air, the moisiture that sweats out at the ends, the Water, and the ashes, the Earth: You may easily perceive by this example so familiar and obvious to the senses what dissolution is, which is succeeded by the decay of the compound body; on the contrary, you may know that the concretion, or uniting and loyning into one of the first mixed bodies is such, that there is no part discernible, or without mixture. For if the heat which is predominant in the fire, should remaine in the mixture in its perfect vigor, it would confume the rest by its pernicious neighbourhood; the like may be said of Coldnefe, Moisture, and Drieffe; although of these qualities, two have the title of Active, that is, Heat, and Coldnefe, because they are the more powerful; the other two Passive, because they may seem more dull and slow, being compared to the former. The temperaments of all sublunarie bodies arise from the commixture of these substances & elementary qualities, which hath bin the principal cause that moved me to treat of the Elements. But I leave the force and effects of the Elementary qualities.
qualities to some higher contemplation, content to have noted this, that of these first qualities, (so called, because they are primarily and naturally in the four first bodies) others arise and proceed, which are therefore called the second qualities: as of many things, Heat, Cold, Light, Darkness, variously distributed by the four Elements, as the Heat, or Coldness, Lightness, or Darkness, have more power over them. For of the Elements, two are called light, because they naturally affect to move upwards: the other two heavy, by reason they are carried downwardly by their own weight. So we think the fire the lightest, because it holds the highest place of this lower world, the Aire which is next to it in fire, we account light; for the water which lies next to the Aire, we judge heavy; and the earth the center of the rest we judge to be the heaviest of them all. Hereupon it is, that light bodies, and the light parts in bodies, have most of the lighter Elements; as on the contrary heavy bodies have more of the heavier. This is a brief description of the Elements of this frail world, which are only to be discerned by the understanding, to which I think good to adjoin another description of the Elements of man's body. Which as they are more corporall, so also are they more manifest to the sense. By which reason Hippocrates being moved, in his Book of Nature humana, after he had described the nature of Hot, Cold, Moist and Dry, he comes to take notice of these by the order of composition. Wherefore the Elements of our generation, as also of all creatures which have blood, are feed and manifest blood. But the Elements of our bodies are the solid and similar parts arising from those Elements of generation. Of this kind are bones, membranes, ligaments, veins, arteries, and many others manifest to the eyes, which we will describe at large in our Treate of Anatomic.

CHAP. V.

Of Temperament.

Temperament is defined a proportionable mixture of hot, cold, moist and dry; or, it is a concord of the first disagreeing faculties. That harmony springs from the mixture of the four first bodies of the world. This whether Temperament or concord is given to Plants and brute beasts for the beginning of their life, and to consequently for their life and forme. But as Plants are inferior in order and dignity to beasts, so their life is more base and inferior, for they have only a growing faculty by which they may draw an Alimentary juice from the Earth, as from their mothers breasts, to preserve them and their life, by which they may grow to a certain extent; and lately, by which they may bring forth their like for the perpetual continuance of their kind. But the life of beasts have to the three former the gift of sense annexed; by benefit whereof, as by a certain inward knowledge, they shun those things that are hurtful, and follow those which profit them, and by the power of their will, they move themselves whither they please. But the foule of man farre more perfect and noble than the rest, ariseth not from that earthly mixture and temper of the Elements, but acknowledgeth and hath a farre more divine offpring, as we shall teach hereafter.

They divide a Temperament at the first division into two kinds; as one a temperate, another an untemperate. The untemperate is of two sorts; the one wholly vicious, which hath altogether exceeded the bounds of mediocrity: the other which hath somewhat strayed from the mediocrity of temper, but notwithstanding is yet contained within the limits of health: as that which brings no such evident harme to the actions, but that it somewhat hinders them, so that they cannot so well and perfectly performe their duties. But the vicious Temperament doth three manner of ways corrupt the functions, either by weakening, depraving or abolishing them. For either, or uponsement, diminueth and sloweth the quicknesse of motion; corruption depraves it; the Palse aboliseth it, and taketh it away. The temperate Temperament
perament is also divided into two kinds which is either to equality of weight, or
juice. It is called a temperature to weight which ariseth from the equall force of
exactly concurring qualities, and as placed in a perfect balance, drawes downe neither
to this nor that part. They thinke the example of this Temperament to appeare in
the inner skinne of the fingers ends of a man tempered to juice. For seeing the moif
exquisite touch refides there, they ought to be farr from all exceffe of contrariety; for
otherwise being corrupted by too much heat or cold, moisture or dryness, they could
give no certaine judgement of the tangible qualities. For which thing nature hath ex-
cellently provided in the fabricke and conformatio of the parts of which the skinne
consists. For it is composed of hot and moist flesh, and therefore soft, and of a ten-
don and nerve cold and dry, and therefore hard, which are not onely equally fitted
and conjointed, but wholly confus'd and mixed together, by which it comes that re-
moved from all extremes of opposition, it is placed in the midst, as a rule to judge of
all the exceffes that happen to the touch. So it was fit the eye, which was to be the
infrument of fight, should be tinctured with no certaine colour, that it might be the
feife deceived in the judgement of colours. So it was convenient the hearing should not
be troubled with any different sound, whereby it might more certainly judge of equall
and unequall sounds, not distinguisht by a ratable proportion; neither was it fit the
tongue should have any certaine taste, lest the acco of that taste should deceivc it in
knowing and judging of fo many different taftes. The Temperature tempered to
juice is that, which although it is a little abfent from the exact and fevere parity of
mixed qualities, yet hath that equallitie which doth fully and abundantly suffice for
to performe all the functions fitly and perfectly which nature doth require, wherefore
we can judge no otherwize of it than by the intrepitude of the Actions. For hence it
tooke its name, for as distributive juice equally gives to evey one rewards, or pun-
nishment according to their deferts, so nature having regard to all the parts of the bo-
dle, gives them all that temper which may suffice to performe those duties, for which
they are ordained. Let us for an example consider a Bone; no man doubts but that.
these of a like as the other fimilar parts of the body proceeds from the mixture of the foure
Elements but nevertheless nature weighing the fife of it, and ordaining it to support the
reft of the body, would have more of the terrene and drie Element infufed into it, that
it might be the stronger and firmer to sustaine weight. But a Ligament, seeing it was
made for other ues, hath leffe of that earthly dryness then the bone, but more then the
fleff, altogether fitt'd to its nature. So it hath seem'd good to nature to endue all
the parts of the body, not onely with an equall portion, but also proportion of Ele-
ments and qualities; wee call that a temperament to juice; and wee fay that it is in
Plants, Brute beafts, and all naturall bodies, which enjoy that temper and mediocri-
ty, which may be agreeable to their nature. Hereupon by comparison ariseth eight
kinds of intemperate tempers,

The kinds of untemperate tempers.

Hot and moist.

Cold and moist.

Cold and drie.

But these tempers are either of the whole body, or of some part thereof
the Braine,
the Heart,
the Liver,
the Stones.

or of the reft of the parts compos'd of other which have no principal-

Againe
Again, such temperaments are either healthfull, which suffice perfectly to perform their action on all, or unhealthfull, which manifestly hurt them, the signes whereof may be read described by Galen: And you must obserue that when we say the body, or any part of the body, we understand all these temperaments whether of the whole body, or any of the parts thereof, to be referred to this end; and in the cure of diseases, we must looke upon it, as the mark, and labour to preserve it by the use of convenient things, as much as lies in our power. Wherefore because it is very necessary to know the distinction of temperaments, I have thought good in this place, briefly to describe the temperaments of the parts of the body, ages, feasons of the yeare, humours, and medicines. Therefore the temperaments of the parts of our body are of this nature, not onely by the judgement of the touch of a mans hand which is justly tempered; who is often deceived by flowing heat, which spread from the heart into all the parts, the body, imparts a certaine kind of heat to all the parts, but also by the rule of their reason, composition and substance, as

A Bone is the most drie and cold.

A Griflle lesse than it.

A Ligament lesse than a Griflle.

A Tendon is so much drier and colder than the membrane, by how much it is in the same temper exceeds a Veine and Arterie. Then follow the harder veins, for the softer are in a middle temper of drie and moisture, like as the skinne, although all both hot and hard, are of a cold temper. Wherefore all these parts of their own nature are cold and without blood; although the veins and arteryes wax hot, by reason of the heat of the blood they containe, which notwithstanding also borroweth that heat from the heart, as a part moist hot, and softer than the skinne; the liver next following, in the order of the hotter parts, which is far softer than the skinne is lesse; for as according to Galens opinion, the heart is somewhat lesse hard than the skinne, and that is far harder than the liver, as appears by touching them, it must necessarily follow that the liver much exceeds the skinne in softness; I understand the skinne simple, and separated from the flesh lying under it, to which it firmly cleaves. The flesh is more moist and hot than the skinne, by reason of the blood diffperfed in it. The pinall marrow is colder and moistier than the skinne; but the braine for much exceeds it in moisture, as it is exceeded by the fat. The lungs are not so moist as the fat, and the spleene, and kidneys, are of the like nature, and neverthelesse they are all moistier than the skinne.

According to the diversities of ages, the temperaments both of the whole body, and of its parts, undergo great mutations; for the bones are farre harder in old men than in children, because our life is, as it were a certaine progress to drie and moisture, which when it comes to the height conqisently causeth death. Wherefore in this place we must speake of the temperaments of ages, when first we shall have defined what an age is. Therefore an age is defined a space of life in which the constitution of the body of it selfe and owne accord, undergoeth manifest changes, the whole course of life hath foure such ages. The first is childhood, which extends from the birth to the eighteenth yeare of age, and hath a hot and moist temper, because it is next to the hot and moist beginnings of life, feed and blood: Youth followeth this which is prolonget from the eighteenth, to the twentie fift yeare, and is temperate, and in the midst of all excellences, Mans estate successeth youth, which they deny to extend beyond the thirtie fift yeare of age, in its proper temper it is hot and drie: whereby it commeth to passe that then the heat is felt more acrid and biting, which in childhood lesse.

Then succeedeth old age ever divided into two parts; the first whereof extends from the thirtie fift, to the fourtie ninth yeare; those of this age are called old men (but we commonly call them middle aged men.) The latter is as it were divided by Galen into three degrees; the first whereof are that, who having their strength found and firme undergo civill affairs and busineses: which things those which are in the second degree

OLD age is devided into two parts,

1. Three degrees of the second part,

Olde age.
gree of old age cannot doe, because of the debilitie of their new decaying strength; but those which are in the last degree are afflicted with most extreme weaknesse and miseriet, and are as much deprived of their senses and understanding, as of the strength of their bodies, whereof arose this Proverb, Old men twine children. The old men of the first three are pleasant, and courteous, and those who are beginning to grow old, or in their green old age, those of the second sort do delight in nothing but the board and bed, but old decrepit men of the last order, think of nothing else, than their graves and monuments. Their firme and solid parts are of a cold and dry temperament, by reason of the decay of the radical moisture, which the inbred heat causeth in the continuance of so many years. Which things may happen in a short space, by the vehement flame of the same natural heat, turned by favourings into a fiery heat. But if any to prove old men moist, will object, that they couche up, and spitt much, I will answer him, as an old Doctor once said, That a pitcher filled with water may poure forth much moisture, yet no man will deny but that such a vessel of its owne terreine nature and matter is moist drye, so old men may plainly be affirmed to be moist, by reason of their defect of heat, and abundance of excrements. But this description of ages, is not to be taken so firmly, as always to be measured by the spaces and distances of yeares, for there are many which by their owne meane- nour, feeme elder at fortie, than others doeat fittie.

Lastly, the famous Philosopher Pythagoras, divided man life into foure ages, and by a certaine proportion compared the whole course thereof to the fourse feasions of the yeare, as childhood to the Spring, in which all things grow and sprout out, by reason of pleny and abundance of moisture. And youth to the Summer, because of the vigour and strength which men enjoy at that age. And manes eache, or commum age to Autumnne, for that then after all the dangers of the forepast life, the gifts of discretion and wit acquire a feasonableness, or ripenesse, like as the fruits of the earth enjoy at that feason. And lastly, he compares old age to the sterile and fruitlesse Winter, which can caufe and conolute its rediounesse by no other meanes, than the tule offruits gathered and flored up before, which then are of a cold and troublesome condition. But for extreme old age, which extends to eighttie, or a hundred yeares, it is so cold and driete, that those which arrive at that decrepit age are troublesome, harsh, touchy, froward, crabby, and often complaining, unittill the length deprived of all their senses, tongue, feet, and understanding, they doting, returne againe to childhoope, as from the traffe to the start. And thus much of the Temperaments of aiges.

But now in like manner we will expaline the temperatures of the feasions of the yeare, which are foure, the Spring, Summer, Autumnne, Winter. The Spring continues almowe from the twelfth or thirteenth day of March, to the midft of May, Hippocrates femeth to make it hot and moist, which opinion feemeth not to have sprung from the thing it selfe, but from an inverterate error of the ancient Philosophers, who would fit the temperaments of the fourse feasions of the yeare, as answering in proportion to the temperatures of the fourse ages.

For if the matter come to a jull triall, all men will say the Spring is temperate, as that which is in the midft of the excesse of heat, cold, moisture and drinke; not onely by comparison because it is hotter than Summer, and colder than Winter; but because it hath that qualitie of its owne proper nature. Wherefore it is said of Hippocrates; The Spring is most holefome and leaf deadly; if so be that it keepe its native temper, from which if it decline, or succeed a former untemperate feasion, as Autumnne, or Winter, it will give occasion to many diseases described by Hippocrates; not that it breeds them, but because it brings them to fight, which before lay hid in the body. Summer is comprehended in the space of almost four moneths; it is of a hot and drie temper, a brethren of such diseases as proceed from choler, because that humor at this time is heaped up in many bodies by adution of blood bred in the Springs; but all such diseases doe speedily runne their course. The beginning of Autumnne, is from the time the Sunne enters into Libra, and endures the like space of time as the Spring. But when it is dry, it hath great inequality of heat and cold, for the mornings and evening being very cold, the noondayses on the contrary are exceding.
Chap. VI.

Way to Chirurgery.

Diagnosing Diseases in Autumn and Winter, and then long and deadly especially if they incline to wards winter: because all daily and suddenly changes to heat and cold are dangerous. The winter poisons the remnant of the year, and is cold and moist; it encreases natural heat, fills up the appetite, and augments Phlegm. It encreases heat by antiperiteresis, or contrariety of the encompasing aire, which being then cold prohibits the breathing out of heat; whereby it happens that the heat being driven in and hindered from dissipation, is strengthened by counteracting its forces. But it augments Phlegm, for that men are more greedy, the Appetite being encreased by the strengthened heat: from whence proceeds much cruelty and a large store of diseases, especially Chronicke or Long which spread and encreases rather in this winter fever than in any other part of the year. To this discourse of the temper, of the seasons of the year, is to be evoked the variety of tempers which happens very day, which certainly is not one while hot, another cold, Autumnall diseases are to be expected. Therefore an Indication taken from hence is of great consequence to the judgment of diseases; for if it agree with the disease, the disease is made more commumacious, and difficult to cure. Whereupon the Patient and Philisiton will have much trouble; but if on the contrary it reclame and differ, the health of the Patient is sooner to be expected. Neither is it a thing of leafe consequence to know the customes and habees of the places and Countries in which we live, as also the inclination of the Heavens and temperature of the Aire; but let vs leave these things to be considered by Natural Philosophers, that we may deliver our judgment of the temperaments of Humors. As, that which answers to the Aire in proportion, is of a hot and moist nature, or rather temperate, as Galen testifyes; for, faith he, it is certaine and sure that the The blood is neither hot, nor moist, but temperate as in its first composition none of the 4 first qualities exceeds other by any manifest exceffe, as he repeats it upon the 39 sentence. Phlegm, as that which is of a watereif nature, is cold and moist; no other wise than Choler being of a fiery temper, is hot and dry. But Melancholy assimilated to Earth, is cold and dry. This which we have spoken in general of Phlegm and Melancholy, is not always true in every kind of the said humors. For false Phlegm is of a hot and dry temperature, as also all kinds of Melancholy which have arose, or sprung by aduction from the native and Alimentary, as we will teach in the following Chapter. Now the Temperaments of Medicines have not the same forme of judgment, as those things which we have before spoken of; as, not from the Elementary quality which conquering in the contention and mixture, obtains the dominion; but plainly from the effects which taken or applied they imprin in a temperate body. For to we pronounce those things hot, cold, moist, or dry, which produce the effects of Heat, Coldness, Moisture or Dryness. But we will defer the larger explication of these things to that place, where we have peculiarly appointed to treat of Medicines; where we will not tamely enquire whether they be hot or cold, but what degree of heat and cold, or the like other quality: in which same place we will touch the temperature and all the Nature of tafts, because the certaine judgment of medicines is drawne from their tafts. Hitherto of Temperaments, now we must speake of Humors whose use in Physicall speculation is no leffe than that of Temperaments.

Chap. VI.

Of Humors.

The knowledge of the nature of Humors is a thing notonely necessary for Phisitans, but also for Chirurgeon, because there is no disease with matter which ariseth not from some one, or the mixture of more Humors. Which thing Hippocrates undestanding, writ, every Creature to be either sick or well according to the Condition.
dition of the Humors in the body. And certainly all putrid fevers proceed from the putrefaction of Humors. Neither do any acknowledge any other original or distillation of the differences of Abomelies or Tumors, neither do ulcerated, booke or otherwise wounded members hope for the reformation of continuity, from other than from the sweet falling downe of humors to the wounded part. Which is the cause that often in the cure of these effects, the Phisitians are necesarly buffetted in tempering the Blood, that is, bringing to a mediocrity the 4 humors composing the maffe of blood, if they are at any time offended in quantity, or quality. For whether if any thing about, or digreffe from the wounded temper in any excede of heat, cold, viscerity, groffenes, thines, or any thing like quality, none of the accustomed functions will be well performed, For which cause those chiefc helps to preserve and restore health have beene divinely invented, Phlebotomy, or bloodletting which amends the quantity of too much blood; and purging which corrects and draws away the vicious quality. But now let us begin to speak of the Humors taking our beginning from the definition.

An Humor is called by Phisitians what thing so ever is Liquide and flowing in the body of living Creatures endued with Blood, & that is either natural, or against nature. Thenaturall is so called because it is fit to defend, preserve and sustaine the life of a Creature. Quite different is the nature & reason of that which is against nature. Again the former is either Alimentary, or Excrementitious. The Alimentary which is fit to nourish the body, is that Humor which is contained in the veins and arteries of a man which is temperate & perfectly well, & which is underdowm by the general name of blood which is let out at the opening of a veine. For blood otherwise taken is an Humor of a certaine kind, distingished by heat and warmness from the other Humors comprehended together with it, in the whole maffe of the blood. Which thing that it may the better be understood, I have thought good in this place to declare the generation of Blood by the efficient and material causes. All things which we eat or drink, are the materials of blood, which things drawn into the bottome of the ventricle by its attractive force, and there detained, are turned by the force of conception implanted in it, into a sub stance like to Almond Butter. Which thing although it appeareth one and like it selfe, yet it consists of parts of a different nature, not only the variety of matters, but one & the same matter yields it selfe. We terme this Chyle (when it is perfectly concocted in the stomacke). But the * Gateveine receives it driven from thence into the small guts, and wicked in by the Mesentrick veines, and now having gotten a little rudiment of Change in the way, carries it to the Liver, where by the blood-making faculty which is proper and natural to this part, it acqueries the absolute and perfect forme of blood. But with that blood as one and the same time and action all the humors are made whether Alimentary or excrementitious. Of which the blood of Gall draws one which we call Yellow Choleri, and the Spleen the other which we terme Melancholy. These two humors are natural, but not Alimentary, or nourishing, but of another use in the body, as after wards we will shew more at large. The blood freed from these 2 kinds of excrements is sent by the veines and Arteries into all parts of the body for their nourishment. Which although then it seeme to be of one simple nature, yet notwithstanding it is truly such, that diverse different and unlike substances may be observed in it, as blood properly so named, Phlegme, Choler and Melancholy, not only distinct in colour, but also in taste, effects and qualities. For as Galen notes in his booke De Natura humanae, Melancholy is acide or foure, Choler bitter, Blood sweet, Phlegme unavory. But you may know the variety of their effects, both by the different temper of the nourished parts, as also by the various condition of the diseases springing from thence. For therefore such substances ought to be tempered and mixed amongst themselves in a certain proportion, which remaining, health remains, but violated, diseases follow. For all acknowledge that an Oudema is causd by Phlegmatick, a Scorbutus by Melancholike, an Erysipelas by Cholericke, and a Phlegmac by pure and laudable blood. Galen teaches by a familiar example of new wine presently taken from the press, that these 4 substances are contained in that one Masse, and mixture of the blood. In which every one observes
observes, for instance, that the flower of the wine working up swims at the top, the dregs fall down to the bottom, and that the crude and watery moisture mixed together with the sweet and vinous liquor, is everywhere diffused through the body of the wine; the flower of the wine represents Choler, which bubbling up on the super-
superficies of blood, as it concretes and grows cold, thineth with a golden colour; the dregs Melancholy, which by reason of its heaviness ever sinketh downward, as it were the Mudd of the blood; the crude and watery portion Phlegme: for as that crude humor, except it be rebellious in quantity, or stubborn by its quality, there is hope it may be changed into wine, by the natural heat of the wine; so Phlegme which is blood halfe concocted, may by the force of native heat be changed into good and
lauable blood. Which is the cause that nature decreed, or ordained no peculiar place, as to the other humours, whereby it might be severed from the blood. But the true and perfect liquor of the wine represents the pure blood, which is the more
lauable and perfect portion of both the humors of the confused Maffe. It may
casly appear by the following scheme, of what kind they all are, and also what the
distinction of these four humors may be.

<table>
<thead>
<tr>
<th>Nature</th>
<th>Consistence</th>
<th>Colour</th>
<th>Taste</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>Of Nature: airy, hot and moist, or rather temperate</td>
<td>Of Colour: red, or rosy or crimson</td>
<td>Of Taste: sweet, or rather savory</td>
<td>For such uses, that is, chiefly serves for the nourishment of the fragile parts, and carried by the vessels imparts heat to the whole body.</td>
</tr>
<tr>
<td>Phlegme</td>
<td>Of Nature: watery, cold and moist,</td>
<td>Of Constiance: liquid</td>
<td>Of Colour: white</td>
<td>For such uses, that is, chiefly serves for the nourishment of the fragile parts, and carried by the vessels imparts heat to the whole body.</td>
</tr>
<tr>
<td>Choler</td>
<td>Of Nature: fiery, hot and dry,</td>
<td>Of Constiance: thin</td>
<td>Of Colour: yellow, or pale</td>
<td>For such uses, that is, chiefly serves for the nourishment of the fragile parts, and carried by the vessels imparts heat to the whole body.</td>
</tr>
<tr>
<td>Melancholy</td>
<td>Of Nature: earthly, cold and dry,</td>
<td>Of Constiance: greasy and muddy</td>
<td>Of Colour: blackish</td>
<td>For such uses, that is, chiefly serves for the nourishment of the fragile parts, and carried by the vessels imparts heat to the whole body.</td>
</tr>
</tbody>
</table>

Phlegme is blood halfe concocted. Why it hath no proper successe.
Blood hath its nearest matter from the better portion of the chyle, and being begun to be laboured in the veins, at length gets form and perfection in the liver; but it hath its remote matter from means of good digestion and quality, seasonably eaten after moderate exercise; but for that, one age is better than another, and one time of the year more convenient than another. For blood is made more copiously in the Spring, because that season of the year comes nearest to the temper of the blood, by reason of which the blood is rather to be thought temperate, than hot and moist, for that Galen makes the Spring temperate, and besides, at that time blood-letting is performed with the best success; youth is an age very fit for the generation of blood; or by Galen opinion, rather that part of life, that continues from the 25 to the 35 years, wherein this humor hath the dominion, are beautified with a fresh and rosy colour, gentle and well natural, pleasant, merry, and facetious.

The generation of Phlegme is not by the imbecility of heat, as some of the ancients thought; who were persuaded that choler was caused by a raging, blood by a moderate, and phlegme and melancholy, by a remisse heat. But that opinion is full of manifest errors: for if it be true that the chyle is laboured and made into blood in the same part, and by the same fire, this is the liver; from whence in the same moment of time should proceed that strong and weak heat, seeming the whole mass of the blood different in its four essential parts, is perfected and made at the same time, and by the same equal temper of the same part, action, and blood-making facultie; therefore from whence we have this variety of humors? From hence, for those means by which we are nourished, enjoy the like condition that our bodies doe, from the four Elements, and the four first qualities; for the same, and we may always presume in what kindsoever they be united or mixed together, they retain a certain hot portion imitating the Fire, another cold, the water, another dry, the earth, and lastly, another moist like to the Aire. Neither can you name any kind of nourishment, so cold forever be, nor Lettuce it selfe, in which there is not some fiery force of beare. Therefore it is no marvel, if one and the same heate working upon the same matter of varying with so great dissimilitude of substances, doe by its power produce so unlike humors, as from the hot, Choler; from the cold, Phlegme; and of the others, such as their infiniteness of temper will permit.

There is no cause that any one should think that variety of humors to be caused in us, rather by the diversity of the active heate, than waxe and a flint placed at the same time, and in the same situation of climate and soil, to this must be the heate of the Sunne, and that cause to waxe warmer. Therefore that diversity of effects is not to be attributed to the force of the efficient cause, that is, of heate, which is one and of one kind, in all of us, but rather to the material cause, consisting composit of the conflux, or meeting together of various substances, gives the heate leave to work, as it were out of its store, which may make and produce from the hotter part thereof Choler, and of the colder, and more rebellious Phlegme. Yet I will not deny but that more Phlegme, or Choler may be bred in one and the same body, according to the quicker, or flower provocation of the heat; yet nevertheless it is not con-sequent, that the originall of Choler should be from a more acride, and of Phlegme from a more dull heat in the same man. Every one of us naturally have a simple heat, and of one kind, which is the worker of diverse operations, not of it selfe, seeing it is always the same, and like it selfe, but by the different fineness, pliablenesse, or resistance of the matter on which it works. Wherefore phlegme is generated in the same moment of time, in the fire of the same part, by the efficiency of the same heat, with the rest of the blood, of the more cold, liquide, crude, and watery portion of the chyle. Whereby it comes to passe, that it shewes an express figure of a certaine rude or unperfect blood, for which occasione nature hath made it necessary that it should have it to run friendly with the blood in the same passages of the veins, that any necercrepitation by famin, or indigence, and in defect of better nourishment, it may, by a perfecte elaboration quickly assume the forme of blood. Cold & rude nourishment makes this humor to abound principally in winter, and in those which incline to old age, by reason of the finimude which phlegme hath with that season and age.

It makes a man drowse, dull, fat, and swollen up, and hastens gray haires, Choler.
is as it were a certaine heate and fury of humour, which generated in the liver, together with the blood is carried by the veins and arteries through the whole body. From which it abounds, is sent, partly into the guts, and partly into the bladder of the gall; or is consumed by transpiration, or sweats; It is somewhat probable that the Arterial blood is made more thynne, hor, quicke and palleted, than the blood of the veins, by the commixture of this Alimentary choler. This humor is chiefly bred and expelled in youth, and acrid and bitter meates give matter to it; but great labours of bodie and minde give the occasion. It maketh a man nimible, quicke, ready for all performance, and quicke to anger, and also to concoct meates. The Melancholike humor, or Melancholy, being the groffuer portion of the blood, is partly sent from the Liver to the Spleene to nourish it, and partly carried by the vesseles into the rest of the body, and spent in the nourishment of the parts ended with an earthly drincife; it is made of meates of groffe juyce, and by the perturbations of the minde, turned to feare and fadme. It is augmented in Autumnne, and in the firste and crude old age, it maketh men fat, harith, conflant, froward, envious and fearefull. All men ought to thinke, that such humors are wont to move at certaine hours of the day, as by a certaine peculiar motion or ride. Therefore the blood floowes from the ninth hour of the night, to the third hour of the day; then Choler to the ninth of the day; then Melancholy to the third of the night, the rest of the night that remains, is under the dominion of Phlegme. Manifest examples hereof appears in the French-Poxe. From the elaborate and absolute maffe of the blood (as we haide before) two kindes of humors, as excrementes of the second concoction, are commonly and naturally separated, the one more greffe, the other more thynne. This is called either absolutely choler, or with an adjuud, yelloow choler. That is called Melancholy, which draws by the Spleene in a thinner portion, and elaborate by the heat of the Arteries, which in that part are both many and large, becomes nourishment to the part; the remnant thereof is carried by the veiny vessele into the orifice of the ventricle, whereby it may not cause, but whet the appetite, and by its aftridion ftrengthen the actions thereof. But yellow Choler drawn into the bladder of the gall, remains there fo long till being troublesome, either in quantitie or quality, it is excluded into the guts, whereby it may call forth the excrements reliding in them; the expulsiv facultie being provoked by its acrimony, and by its bitterneffe kills the worms that are bred there. This same humor is accustomed to dye the urine of a yellow colour. There is another feros humors, which truly is not fit to nourishe, but profitable for many other things, which is not an excrement of the seconde, but of the firste concoction. Therefore nature would that mixed with the Chylus, it should come to the Liver, and not be voiced with the excrements, whereby it might alay the groffe of the bloud, and serve it for a vehicle, for otherwise the bloud could not paffe through the capillary veins of the Liver, and puffing the famous and gibbous parts thereof, come to the hollow vaine, Part of this feros humor seperated together with the blood which serves for the nourishment of the Reines, and straight carried into the bladder, is turned into that urine which we daily make; the other part therefore carried through all the body together with the blood, performing the like duty of transportation, is excluded by sweats into which it degenerates. Besides the forenamed, the Arabians have mentioned foure other humors, which they terme Alimentary and secondeitary, as being the next matter of nourishment, as thofe foure the blood contains, the remote. They have given no name to the firste kind, but imagine it to be that humor, which hangs ready to fall like to little drops in the utmost orifices of the vaine. They call the second kind, *Dew; being that humor, which entered already into the substance of the part, doth moisten it. The third they call by a Barbarous name Cymbalom, which already put to the part to be nourishe, is there fastened. The fourth named Glutin, or Glew, is onely the proper and substance-making humidity of the simular parts, nor their substance. The distinction of the degrees of nourishment recited by Galen in his Bookes of Naturall faculties, answer in proportion to this distinction of humors. The first is, that the blood flow to the part that requires nourishment; then that being there arrived, it may be agglutinated; then lastly, that having lost its former forme of nourishment, it may be assimilated.

* Ros.

Secondary

humors.

Gluten, or Glew, is onely the proper and substance-making humidity of the simular parts, nor their substance. The distinction of the degrees of nourishment recited by Galen in his Bookes of Naturall faculties, answer in proportion to this distinction of humors. The first is, that the blood flow to the part that requires nourishment; then that being there arrived, it may be agglutinated; then lastly, that having lost its former forme of nourishment, it may be assimilated.

Thofe

The effects of Melancholy.

What morbid

parts are most

affected.

A Serous or

yellow hu-

mors.

The effects

of Choler.

Secundary

humors.
An Introduction, or Compendious

CHAP. 6.

Numors against nature, which being corrupted, infect the body and the parts in which they are contained by the contagion of their corruption, retaining the names and titles of the humors, from whose perfection and nature they have revolted; they all grow hot by putrification, although they were formerly by their own nature cold. And they are corrupted, either in the veins only, or within and without the veins. In the veins Blood and Melancholy, but both without and within the veins, Choler and Phlegme. When blood is corrupted in its thinner portion, it turns into choler, when in its thicker, into Melancholy; for the blood becomes fætid two manner of ways, either by the corruption of its proper substance by putrification, or by admixture of another substance by infection. The Melancholy humor which is corrupted in the veins, is of three sorts: the 1. is of a Melancholy juice putrifying, and by the force of a strange heat, turned as it were into ashes, by which it becomes acid and biring. The other arises from that Choler which resembles the yolkes of eggs, which by adulteration becomes lecke-coloured, then aruginous, or of a bluish green, then red, and lastly black, which is the very worst kind of Melancholy, hot, maligne, eating and exulcerating, and which is never seen or voided with safety. The third comes from Phlegme putrifying in the veins, which first degenerates into false Phlegme, but straight by the strength of extraneous heat degenerates into Melancholy.

Phlegme not natural is bred, either

or without the veins, and is of 4. sorts, either

Waterish, as is that thigne moisture which di-ffils from the braine by the nostrills.
Mucous, as when that waterish is thickened into flith by the help of some accidental or small heat.
Glagge, or * Alsium, resembling molten glass, or rather the white of an egge, and is most cold.
Gypsea, or Plaister-like, which is concrete into the hardnest and forme of chalke, as you may see in the joints of the fingers in a knotty goute, or in inveterate distillation upon the Lungs.

Choler not natural is bred, either

Or in the capacitie of the upper belly as the vennicle, and this is of five kinds

The first is called Poraces or leek-co-loured, resembling the juice of a leek in greeneness.
The 2. agrugina, or aruginous, like in colour to verdigris.
The 3. blewh, or wood-coloured, like the colour died by wood.
The 4. red, differing in this from blood, whose colour it imitates, that it never cometh into knots, or clods like blood.
The 5. very red, generated by the excele of the former, which causeth burning feavers.

Acide and very crude, as which hath had none or very little impressio of heathe, but that which it first had in the stomacke.
Salt, which is bred by the sweet, putrifying and adult, or mixture of adult and salt particles.

The 2. vitelline (like in consistence to the yolk of a raw egge) which the acrimony of strange heat breeds of yellow choler, which frame in diseases altogether deadly, degenerates into green, aruginous, and lastly into a blue, or colour like that which is dried by wood.
The kinds of such choler, are often cast forth by vomit in diseases, the strength of the disease being past; being troublesome to the parts through which they are evacuated, by their bitterness, acrimony and biting.

The Signs of a Sanguine Person.

I think it manifest, because the matter and generation of flesh is principally from blood, that a man of a fleshly, dense, and solid habit of body, and full of sweete and voluptuous juice, is of a Sanguine complexion. And the same party hath a flourishing and roacie colour in his face, tempered as with an equal mixture of white and red; of white, by reason of the skinne lying utmost; of red, because of the blood sored underneath the skinne; for always such as the humor is, such is the colour in the face. In manners hee is courteous, gentle, easy to be spoken to, not altogether estranged from the love of women, of a lovely countenance and fine forehead, seldom angry, but taking all things in good part; for as the inclination of humors is, person so also is the disposition of manners. But blood is thought the mildest of all humors, but the strong heate of the inward parts maketh him to eat and drink freely. Their dreams are pleasant, they are troubled with diseases arising from blood, as frequent Phlegmons, and many Sanguine pustules breaking through the skinne, much bleeding, and menstruous fluxes. Wherefore they can well endure blood-letting, and delight in the moderate use of cold and dry things; and lastly, are offended by hot and moist things. They have a great and strong Pulse, and much urine in quantity, but mild of quality, of an indiffernt colour and substance.

The Signs of a Cholericke Person.

Cholericke men are of a pale or yellowish colour, of a leane, slender and rough habit of body, with faire veins and large Arteries, and a strong and quick Pulse; their skinne being touched, feels hot, dry, hard, rough and harsh, with a prickling and aced exhalation which breathes forth of their whole body. They cast forth much choler by stool, vomite and urine. They are of a quick and nimble wit, stout, hardy and sharpe vindicators of received injuries, liberall even to prodigalitie, and somewhat too desirous of glory. Their sleepe is light, and from which they are quickly waked; their dreames are fiery, burning, quick and full of furie; they are delighted with meates and drinks which are somewhat more cold and moist, and are subject to Tertian and burning feavers, the Phrenfie, Jaundife, Inflammations, and other cholericke pustules, the Laske, Bloudy fluxe, and bitterness of the mouth.

The Signs of a Phlegmatticke Person.

Those in whom Phlegme hath the dominion, are of a whith colore, and sometimes livide and swollen, with their body far, soft and cold to touch. They are molested with Phlegmaticke diseases, as edemastic tumors, the Dropie, Quotidians feavers, falling away of the haires, and cataractes falling downe upon the Lungs, and the Astrea Arteria, or Veafon; they are of a low capacitie, dull,loathful, drouzie, they doe dreame of raines, snowes, floods, swimming, and fuch like, that they often imagine themselves overwhelmed with waters; they vomite up much waterie, and Phlemmaticke matter, or otherwife spit and evacuate it, and have a foft and moist tongue. And they are troubled with a dogge-like hunger, if it at any time should happen that their inipide Phlegme become acide; and they are flow of digestion, by reason of which they have great store of cold and Phlegmatticke humors, which if they be carried downe into the windings of the cholicke-gut, they caufe murmuring and noise, and sometimes the Cholick.

For much wind is eafily caufed of fuch like Phlegmaticke excrements wrought upon C3 by

From whence noife, or cause bailing in the belly. pace of
by a small and weak heat, such as Phlegmaticke persons have, which by its natural lightness is diversely carried through the turnings of the guts, and diffuses and (wells thence up, and whiles it drives for passage out, it causeth murmurings and noises in the belly, like winds breaking through narrow passages.

**Signes of a Melancholy person.**

The face of Melancholy persons is swarthy, their countenance cloudy and often cruel, their aspect sad and froward, frequent Schirrous, or hard swellings, tumors or the spleen, Hemmorhoids, Variets (or swollen veins) Quartaine leavrs, whether continual or interrupting. Quartaine, Sextaine, and Septimane favours: and to conclude, all such wandering leavrs or agues for upon them. But when it happens the Melancholy humor is sharpened, either by adustion, or commixture of Choler, then Tilters, the blacke Morphew, the Cancer simple and ulcerated, the Leprous and filthy scabbe, sending forth certain scaly and branlike excrescences, being vulgarly called Saint Mam tijis evile, and the Leprouse itselfe invades them: They have small veins and arteries, because coldneffe hath dominion over them, whose propriety is to straiten, as the quality of heat is to dilate. But if at any time their veins seeme bigge, that largeness is not by reason of the laudable bloud contained in them, but from much windineffe; by occasion whereof it is somewhat difficult to let the blood; not only because that when the vein is opened, the blood flows slowly forth, by reason of the cold flowes of the humors, but much the rather, for that the vein doth not receive the impression of the Lancet, flinging this way and that way, by reason of the windineffe contained in it, and because that the hard drineffe of the upper skinne, refisteth the edge of the instrument. Their bodies seeme cold and hard to the touch, and they are troubled with terrible dreames, for they are observed to se in the night Devils, Serpents, darkie dens and caves, sepulchers, dead corpes, and many other such things full of horror, by reason of a blacke vapour, deverely moving and disturbing the Baine, which also wee see happens to them, who fear the mans Water, by reason of the biting of a mad dogge. You shall finde them froward, seditious, parfimonious, and covetous, even to baseness, low speakers, fearefull, sad, complainers, careful, ingenious, lovers of solitariness, man-haters, obstinate maintainers of opinions once conceived, slow to anger, but angered not by pacifying. But when Melancholy hath exceeded natures and its owne bounds, then by reason of putrefaction and inflammation all things appeare full of extreme fury and madneffe, so that they often cast themselvs headlong downe from some high place, or are otherwise guilty of their owne death, with feare of which notwithstanding they are terrified.

But we must note that changes of the native temperament doe often happen in the course of a mans life, so that hee which a while agoone was Sanguine, may now bee Cholerick, Melancholick, or Phlegmatick, not truly by the changing of the bloud into such humors, but by the mutation of Diet, and the course or vocation of life. For none may of a Sanguine complexion but will prove Cholerick if he eat hot and drye meats, (as all like things are cherished and preserved by the use of their like, and contraries are destroyed by their contraries) and wearie his body by violent exercitcs, and continual labours; and if there be a suppression of Cholerick excrements, which before did freely flow, either by nature, or are. But whatsoever feeds upon meates generating groffe bloud, as Beefe, Venison, Hare, old Cheefe, and all fat meates, he without all doubt fliding from his nature, will fall into a Melancholy temper; especially if to that manner of diet, hee shall have a vocation full of cares, turmoiles, miseries, strong and much study, careful thoughts and fears, and also if he fit much, wanting exercitcs, for to the inward heat as it were defrauded of its nourishment, sweets, and growes dull, whereupon groffe and dreifie humors abound in the body. To this allto the cold and drie condition of the place, in which we live, both concede, and the suppression of the Melancholy humor accustomed to be evacuated by the Hemmorhoides, courses, and floodes.

But he acquires a Phlegmaticke temper whatsoever with cold & moist nourishment, much
much feeding, who before the former meate is gone out of the belly, shall issue his paunch with more, who presently after meate runs into violent exercises, who inhabit cold and moist places, who lead their life at ease in all idleness, and lastly, who suffer a suppression of the Phlegmaticke humour accustomedly evacuated by vomit, cough, or blowing the nose; or any other way either by nature or arte. Certainly it is very convenient to know these things, that we may discern if any at the present be Phlegmaticke, Melancholick or of any other temper, whether he be such by nature, or necessity. Having declared these things which concern the nature of Temperaments, and deferred the description of the parts of the body to our Anatomy, we will begin to speak of the faculties governing this our life, when first we shall have shewn by a practical demonstration of examples, the use and certainty of the aforesaid rules of Temperaments.

CHAP. VII.

Of the Practice of the aforesaid rules of Temperaments.

That we may draw the Theorick of the Temperaments into practice, it hath seemed good for avoiding of confusion, which might make this our introduction seem obscure, if we would prosecute the differences of the Tempers of all men of all Nations, to take those Limits, which nature hath placed in the world; as South, North, East and West; and as it were the Center of those bounds, that the described variety of Tempers, in colour, habit, manners, studies, actions, and forms of life of men that inhabit those Regions situated so far one from another, may be as a sure rule, by which we may certainly judge of every man's temperature in particular, as he shall appear to be nearer, or further off from this, or that region.

Those which inhabit the South as the Africans, Ethiopians, Arabians and Egyptians, are for the most part deformed, lean, dusky coloured and pale, with black eyes and great lippes, curled hair, and a small and shrill voice. Those which inhabit the Northern parts as the Scythians, Muscovites, Polonians and Germans, have their faces of colour white, mixed with a convenient quantity of blood, their skin soft and delicate, their hair long, hanging down and spreading abroad, and of a yellowish, or reddish colour, of stature they are commonly tall, of a well proportioned, fat and compact habit of body, their eyes grey; their voice strong, loud and big. But those who are situated between these two former, as the Italians and French, have their faces somewhat swarthy, are well favoured, nimble, strong, hairy, slender, well in flesh, with their eyes resembling the colour of Goates' eyes, and often hollow eyed, having a clear and pleasing voice.

The Southerne people are exceeded so much by the Northern in strength and ability of body, as they surpass them in wit and the faculties of the mind. Hence it is if you may read in Histories, that the Scythians, Gothers and Vamhite, veared Affricke and Spaine with infinite incursions, and most large and famous Empires have beene founded from the North to the South; but few or none from the South to the North. Therefore the Northern people thinking all right and law to confit in Arms, did by Duell onely determine all causes and controversies arising among the inhabitants, as we may gather by the ancient lawes, and customs of the Lumbards, English, Burgonians, Danes and Germans; and we may see in Saxo the Grammarian that such a law was once made by pronto king of Denmark. The which custom at this day is everywhere in force amongst the Muscovites. But the Southerne people have always much abhorred that fashion, and have thought it more agreeable to Beads than Men. Wherefore we never heard of any such thing used by the Affyrins, Egyptians, Persians or Jews. But moved by the goodness of their wiz, they erected Kingdomes and Empires by the only help of Learning and hidden sciences. For seeing by nature they are Melancholick by reason of the dryness of their temperature, they willingly addict themselves to solitariness.
foltarnisellc and contemplation, being endowed with a singular sharpness of wit. Wherefore the Ethiopians, Egyptians, Africans, Jews, Phanicians, Persians, Affyrians, and Indians, have invented many curious sciences, revealed the Mysteries and secrets of Nature, digested the Mathematiques into order, observed the motions of the heavens, and first brought in the worship and religious sacrifices of the gods: Even so farre that the Arabians who live only by health, and have only a Waggon for their house, do boast that they have many things diligently and accurately observed in Astrology by the Ancelors, which every day made more accurate and copious, they, as by an hereditary right, commended to posterity, as it is recorded by Leo the African. But the Northerne people, as the Germaines, by reason of the abundance of humours and blood, by which the mind is as it were oppreft, apply themselves to workes obvious to the senses, and which may be done by the hands. For their minds oppreft with the earthly mass of their bodies, are easily drawn from heaven and the contemplation of Celestiall things, to these inferior tilities, as to find out Mines by digging, to buy and cast metals, to draw and hammer out workes of Iron, steel and brass. In which things they have prov'd so excellent, that the glory of the Invention of Guns and Printing belongs to them. The people who inhabite the middle regions betweene these, are neither naturally fit for the more abstract sciences, as the Southerne people are, nor for Mechanick workes, as the Northerne, but intermeddle with civil affairs, commerce and Merchandizing. But are endowed with such strength of body as may suffice to avoid and delude the crafts and arts of the Southerne Inhabitants, and with such swifdome as may be sufficient to refraine the fury and violence of the Northern. How true this is, any one may understand by the example of the Carthaginians and Africans, who when they had held Italy for some yeares by their subtle counsels, crafty flights and devices, yet could not escape but at the length their Arts being deluded, and they spoiled of all their fortunes, were brought in subjection to the Romans. The Goths, Huns, and other Northern people have spoild & overrun the Romane Empire by many incursions and inroads, but deftitute of counfell & providence, they could not keep those things which they had gotten by Armes and valour. Therefore the opinion of all Historians is agreeing in this, that good lawes, the forme of governing a Commonwealth, all politicke ordinances, the Arts of disputing and speaking, have had their beginning from the Greeks, Romans and French. And from hence in times past and at this day a greater number of Writers, Lawyers and Counsellors of State have sprung up, than in all the world besides. Therefore that we may attribute their gifts to each Region, we affirmethar. The Southerne people are borne and fit for the studyes of learning; the Northerne for warres, and those which be betweene them both for Empire and rule. The Italian is naturally wise, the Spaniard grave and constant; the French quicke and diligent, for you would say he runs when he goes, being compared to the flow and womanish pace of the Spaniard, which is the cause that Spaniards are delighted with French servants for their quicke agilitie in dispatching busines. The Easteern people are especially endowed with a good, firm and strong temper, not keeping their counsels secret and hid. For the haite is of the nature of the Sunne, and that part of the day which is next to the rising of the Sunne is counted the right-side and stronger, and verily in all living things the right-side is always the more strong and vigorous. But the Western people are more tender and effeminate, and more close in their carriage and mind, not easily making any one partaker of their secrets. For the Weft is, as it were subjicet to the Moone, because at the change it always inclines to the Weft, whereby it happens, that it is reputed as no whit as a finifter, fuller and opposite to the East; and the Weft is leff temperate and wholesome. Therefore the windes none is more wholesome than the Eastwinde which blows from the Weft with a most fresh and healthfull gale, yet is feldome blowes, but only at Sun set. The Northerne people are good eaters, but much better drinkers, witty when they are a little moistened with wine, and talkers of things both to be spoken and concealed, nor very caution in their promises and agreements, but principall keepers and preservers of shamefastnes and chastity, farre different from the inhabitants of the South, who
Chap. VIII.

Of the Faculties.

Faculty is a certaine power, and efficient cause, proceeding from the temperament of the part, and the performer of some actions of the body. There are three principal Faculties governing mans body as long as it enjoys its integrity.

who are wonderfull sparing, sober, secret and subtle, and much addicted to all sorts of wicked Lust. In his Problemes faith that those nations are barbarous and cruel, both which are bent with immoderate hate, and which are opprest with excessive cold, because a soft temper of the Heavens softens the Manners and the minde. Wherfore both, as well the Northern, as Scythians and Germans, and the Southern, as Africans are cruel, but these have this of a certaine naturall fomnes and soildierlike boldnes, and rather of anger, than a willfull desire of revenge, because they cannot restraine by the power of reason the first violent motions of their anger by reason of the heat of their blood. But those of a certaine inbred and inhuman pravity of manners, willfully and willingly premeditating they performe the works of cruelty, because they are of a sad and melancholy nature. You may have an example of the Northern cruelty from the Transilvanians against their sedition's Captain George, whom they gave to be torn in pieces alive and devoured by his Soldiers, (being kept fasting for three days before for that purpose,) who was then unbowedelled, and rotted, and lo by them eaten up. The Cruelty of Hannibal the Captain of the Carthaginians may suffice for an instance of the Southern cruelty. He left the Roman Captives wearied with burdens and the length of the way, with the soles of their feet cut off; but those he brought into his tents, joyning brethren and kinsmen together he caus'd to fight, neither was satisfied with blood before he brought all the vigors to one man. Also we may see the cruel nature of the Southern Americans, who dip their children in the blood of their slain enemies, then suck their blood, and banquet with their broken and squealed Limbs.

And as the Inhabitants of the South are free from divers P lethorick diseaases, which are caused by abundance of blood, to which the Northern people are subject, as Feavers, Defluxions, Tumors, Madnede with laughter which causeth those which have it to leap and dance (The people commonly term it  s. vitia his Evils) which admits of no remedy but Musick: So they are often molest'd with the Frenzie invading with madnede and fury; by the heat whereof they are often so rathiered and carried besides themselves that they foretell things to come; they are terrified with horrible dreams and in their fits they speake in strange and foreigne tongues, but they are so subject to the scurfe and all kind of scabbs and to the Leprofe as their homebred diseaases, that no houses are so frequently met withal by such as travel through either of the Mauritania's as Hospittals provided for the Lodging of Lepers.

Those who inhabit rough and Mountainous places, are more brutifli, tough & able to endure labour: but such as dwell in plains, especially if they be moorish, or fenniff are of a tender body, and sweate much with a little labour; the truth of which is confirmed by the Hollanders and Frizlanders. But if the plains be such as is soorded by the heat of the Sunne, and blowne upon by much contrariety of winds, it breeds men who are turbulent, not to be tamed, desirous of sedition and novelty, stubborne, impatient of servitude, as may be perceived by the folie example of the inhabitants of Narbon a province of France.

Those who dwell in poore and barren places are commonly more witty and diligent and most patient of labours; the truth of which the famous wits of the Athenians, Ligurians and Romans, and the plaine country of the Boeotians in Greece, of the Campanians in Italy, and of the rest of the inhabeters adjoyning to the Ligurian sea, approves.

Chap. VIII.

Faculty is a certaine power, and efficient cause, proceeding from the temperament of the part, and the performer of some actions of the body. There are three principal Faculties governing mans body as long as it enjoys its integrity.
The triplaute of the Pulse.

The natural faculties in three-fold.

The natural faculty in three-fold.

What Nutrition is.

Four other faculties attend upon the nourishing faculty.

The necessity of the retaining faculty.

Two excess of every concoction.

tegrity; the Animal, Vital and Natural. The Animal is seated in the proper temperament of the Brain, from whence it is distributed by the Nerves into all parts of the body which have sense and motion. This is of three kinds, for one is Moving, another labourative; the third principal. The labourative confines in the five external senses; sight, hearing, taste, smell and touch. The Moving principally remains in the Muscles and Nerves, as the fit instruments of voluntary motion. The Principal comprehends the Reasoning faculty, the Memory and Fancy. Gastrum would have the Common or inward sense to be comprehended within the compass of the Fancy, although Aristotile distinguishes between them.

The Vital abides in the Heart, from whence heat and life is distributed by the Arteries to the whole body: this is principally hindered in the disaters of the Brain, as the Principal is. When any disease affails the Brain, the prime action of the vital faculty is Pullation, and that continued agitation of the Heart and Arteries, which, is of threefold use to the body: for by the dilatation of the Heart and Arteries, the vital spirit is clarified by the benefit of the Air which is drawn in, by the contraction thereof the vapours of it are purged and sent forth, and the native heat of the whole body is tempered by them both.

What Nutrition is, nothing else but a replenishing, or repairing whatsoever is wasted or emptied. This nourishing faculty endures from that time the Infant is formed in the womb, until the end of life. It is a matter of great consequence in Philosophy to know the 4 other faculties, which as servants attend upon the nourishing faculty; which are the Attractive, Retentive, Digestive, and Expulsive faculty. The Attractive draws that juice which is fit to nourish the body, that I say which by the necessity by that means it yeelds no small assistance to the Digestive faculty. For the natural heat cannot performe the office of concoction, unless the meat be embraced by the part, and make some stay therein. For otherwise the meat carried into the stomacke never acquires the forme of Chylum, unless it stay detained in the windes thereof, as in a rough passage, until the full time of Chylification. The Digestive faculty assimilates the nourishment, being attracted and detained, into the substance of that part whole Faculty it is, by the force of the inbred heat & proper disposition or temper of the part. So the stomacke plainly changes all things which are eat and drunked into Chylum, & the Liver turnes the Chylum into blood. But the Bones & Nerves convert the red and liquid blood which is brought down unto them by the capillary or small veins, into a white & solid substance. Such concoction is far more laborious in a Bone and nerve, than in the Muscular flesh. For the blood being not much different from its nature, by a light change and concretion turns into flesh. But this Concoction will never satisfy the desire of Nature and the parts, unless the nourishment purged from its excrements, put away the filth and dross, which must never enter into the substance of the part. Wherefore there do not only two sorts of excrements remaine of the first and second Concoction, the onethicke, the other thin, as we have said before, but also from the third Concoction which is performed in every part. The one of which we conceive only by reason, being that which vanishes into Air by insensible Transpiration. The other is knowne sometimess by sweats, sometimess by a thicke fatty substance flaving the shirt; sometimess by the generation of haire and nails, whole matter is from fuliginous and earthly excrements of the third Concoction. Wherfore the fourth Faculty was necessary which might yeeld no small help.
Chap. IX.

Of the Actions.

An Action or Function is an active motion proceeding from a faculty; for as the facultie depends on the Temperament, so the Action on the faculty, and the Act or worke depends upon the Action by a certaine order of consequence. But although that the words Actions and Act or worke are often confounded, yet there is this difference betweene them, as that the Action signifies the motion used in the performance of any thing; but the Act or worke, the thing already done and performed: for example, Nutrition and the Generating of flesh are natural Actions; but the parts nourished, and a hollow ulcer filled with flesh are the works of that motion, or action. Wherefore the Act ariseth from the Action, as the Action ariseth from the faculty, the integrity or perfection of the instruments concurring in both. For as, if the facultie bee either defective, or but no Action will be well performed; so unless the Instruments keepe their native and due conformitie (which is their perfect health, the operator of the Action proper to the instrument) none of those things, which ought to be, will be well performed. Therefore for the performance of blamelesse and perfect actions, it is in a due conformity of the instrument concurreth with the faculty. But Actions are two fold; for they are either Natural, or Voluntary. They are termed Natural, because they are performed not by our will, but by their owne accord and against our will. As are that continuall motion of the Heart, the beating of the Arteries, the expulsion of the Excrements, and such other like which are done in us by the Law of Nature whether we will, or no. These Actions flow either from the Liver and veines, or from the Heart and Arteries, Wherefore we may comprehend them under the names of Natural and Vital Actions. For we must attribute his Action to each faculty, lest we may seeme to constitute an idle facultie, and no way profitable for use. The involuntary vital actions are the dilatation & contraction of the Heart and Arteries, the which we comprehend under the sole name of the Pulle: by that they draw in, and by this they expell, or drive forth. The involuntary vital actions be,

- Generation, Growth and which proceed from the Generative, Growing, and Facultie.
- Nutrition

Generation is nothing else than a certaine producing, or acquiring of matter, and an introducing of a substantiall forme into that matter; this is performed by the affilience of faculties; of the Altering which doth diversely prepare and dispose the feed and mensuruous blood to put on the forme of a Bone, nerve, spleene, flesh and such.
such like: of the Forming faculty which adorns with figure, site and composition, the matter ordered by 

**What Growth is.**

Growth is an enlarging of the solid parts into all the dimensions, the prifine and ancient forms remaining safe and found in figure and solidity. For the perfection of every growth is judged only by the solid parts; for if the body swell into a mass of flesh, or fat, it shall not therefore be said to be growing: but then only when the solid parts do in like manner increase, especially the bones, because the growth of the whole body follows their increase, even although at the same time it wax lean, and pine away.

**What Nutrition is.**

Nutrition is a perfect assimilation of that nourishment which is digested, into the nature of the part which digests. It is performed by the sufficiency of the alimentary or helping actions, Attractive, Retentive, Digestive and Expulsive.

**Action voluntary.**

The voluntary actions which we willingly perform, are so called, because we can at our pleasure hinder, stir up, slow or quicken them. They are three in general, the sensitive, moving, and principal Action. The sensitive *Soûle comprehends all things in fine senses, in Sight, Hearing, Smell, Taste and Touch. Three things must necessarily concur to the performance of them, the Organ, the Medium or means, and the Object. The principal Organ, or Instrument, is the Animal spirit diffused by the nerves into each several part of the body, by which such actions are performed. Wherefore for the present we will use the Parts themselves for their Organes. The Meane is a body, which carries the Object to the Instrument. The Object is a certain external quality, which hath power by a fit Medium or Means to stirre up and alter the Organ. This will be more manifest by relating the particular functions of the senses by the necessary concurring of these three.

**How sight is performed.**

Sight, is an action of the seeing faculties, which is done by the Eye fitly composed of its coats and humors, and so consequently the Organical body of this Action. The Object is a visible quality brought to the Eye. But such an Object is two-fold; for either it is absolutely visible of itself, and by its own Nature, as the Sun, the fire, the Moone and Starres: or desires as it were the help of another that it may be actually such, for so by the coming of light the colours, which were visible in power only, being brought to the Eye do become and appear such as they actually are. But such Objects cannot arrive at the Eye, but thorough a cleere and illuminate Medium, as the Aire, Water, Glass and all sorts of Crystall.

**How hearing.**

The Hearing hath for its Organ the Ear and Auditory passage, which goes to the stony bone furnished with a Membrane investing it, an Auditory Nerve, and a certain inward spirit there contained. The Object is every sound arising from the immitent or broken Aire, and the Collission of two bodies meeting together. The Medium is the encompassing Aire which carries the sound to the Ear.

**How smelling.**

Smelling (according to Galen's opinion) is performed in the Mamillary protubrances produced from the proper substance of the brain; and feared in the upper part of the nose: although others had rather smelning should be made in the very foremost ventricles of the brain. This Action is weaker in man in comparison of other Creatures; the Object thereof is every smell, or fume exhalation breathing out of bodies. The Medium by which the Object is carried to the noses of Men, Beasts and Birds, is the Aire, but to Fishes the Water itself. The Action of taste is performed by the tongue being tempered well and according to nature, and furnished with a nerve spread over its upper part from the third and fourth conjunct of the Brain. The Object is *Taste, of whole nature and kindes we will treat more at large in our Abstratory. The Medium by which the Object is so carried to the Organ, that it may affect it, is either external, or internal: The external is that part of which doth as it were anoyr and fupple the tongue; the internal is the Spongy flesh of the tongue in felle, which affected with the quality of the Object doth presently to poffefse the nerve that is implanted in it, that the kindle and quality thereof by the force of the spirit may be carried into the common felle. All parts ended with a nerve enjoy the sense of touching, which is chiefly done, when a tradable quality doth penetrate.
penetrate even to the true and nervous skinne, which lyeth under the Cuticle, or scale-skinne; we have formerly noted, that it is most exquisite in the skinne which invests the ends of the fingers. The Object is every tractable quality, whether it be of the first rank of qualities, as Heat, Cold, Moisture, Dryness, or of the second, as Kneer, Smoothness, Heaviness, Lightness, Hardness, Softness, Rarity, Density, Friability, Virtuosity, Grossness, Thinness. The Medium by whose procurement the instrument is affected, is either the skinne or the flesh interwoven with many Nerves.

The next Action, is that Motion, which by a peculiar name we call voluntary; this is performed and accomplished by a Muscle, being the proper Instrument of voluntary Motion. Furthermore every motion of a member performing a Muscle is made either by bending and contraction, or by extension. Although generally there be so many differences of voluntary motion, as there are kinds of fire in place; therefore Motion is said to be made upward, downward, to the right-hand, to the left, forward and backward; Hither are referred the many kinds of motions, which the infinite variety of Muscles produce in the body. Into this rank of Voluntary Actions, comes Respiration, or breathing because it is done by the help of the Muscles; although it be chiefly to temper the heat of the Heart. For wee can make it more quicker, or slower as we please, which are the conditions of a voluntary Motion.

Lastly, that wee may have somewhat in which we may safely rest and defend our selves against the many questions which are commonly moved concerning this thing, we must hold, that Respiration is undergone and performed by the Animal faculty, but chiefly instituted for the vital.

The Principal Action and prime amongst the Voluntary is absolutely divided in three; Imagination, Reasoning and Memory. Action.

Imagination is a certaine expressing and apprehension which distinguishes between the forms and shapes of things sensibl, or which are knowne by the senses. Reasoning is a certaine judiciall estimation of conceived or apprehended forms or figures, by a mutuall collating, or comparing them together. Memory is the sure storer of all things, and as it were the Treasurie which the minde often unfolds and opens, the other faculties of the minde being idle and not imployed. But because all the forrenmentioned Actions whether they be Natural, or Animal and voluntary, are done and performed by the helpe and assistance of the Spirits; Therefore now wee must speake of the Spirits.

CHAP. X.

Of the Spirits.

He spirit is a subtile and Aery substance, raised from the purer blood that it might be a vehicle for the faculties (by whose power the whole body is governed,) to all the parts, and the prime Instrument for the performance of their office. For they being destitute of its sweeter approache do presently cease from action, and as dead do rest from their accustomed labours. From hence it is that making a variety of Spirits according to the number of the faculties, they have divided them into three; as one Animal, another Vital, another Natural.

The Animal hath taken his seat in the braine, for there it is prepared and made, that from hence conveyed by the Nerves is may impart the power of sense and Motion to all the rest of the members. An argument hereof is, that in the great Cold of Winter, whether by the intercepting them in their way, or by the concretion, or as it were freezing of these spirits, the
the joints grow stiff, the hands numbe, and all the other parts are dull, destitute of
their accustomed gilitiy of motion, and quicknecfe of sense. It is called Animal not
because it is the * Life, but the chief and prime instrument thereof; wherefore it hath a most subtle and Aery substance: and enjoys divers names according to
the various condition of the Senfories or seates of the senses into which it en-
ters; for that which caufeth the sight, is named the Vitive: you may fee this
by night, rubbing your eyes, as sparkling like fire. That which is conveyed to
the Auditive passage, is called the Auditive or Hearing: That which is carried
to the Instrument of Touching, is termed the Tadive; and fo of the reft.

This Animal spirit is made and labour'd in the windings and foldings of the
veines and Arteryes of the braine, of an exquisite subtle portion of the vital
brought thither by the Curvate Arteries, or slye Arteryes, and sometimes also
of the pure aire, or sweeet vapour drawne in by the Noie in breathing. Hence
it is, that with Ligatures we stoppe the passage of this spirit, from the parts we in-
tend to cut off. An Humor which obstructs or stopps its passage, doth the like in
Apoplexies and Palfies, whereby it happens that the members laquish under that
place doe languish and feeme dead, sometimes destitute of motion, sometimes wan-
ting both fence and motion.

The Vital spirit is next to it in dignitie and excellency, which hath its chief
manfion in the left veacricle of the Heart, from whence through the Channells
of the Arteryes it floweth into the whole body, to nourish the heats which re-
Tides fixed in the subftance of each part, which would perifli in lofter time unlefe it
fhould be refre:fed by heat flowing thither together with the fpirit. And becaufe it is
the most subtle next to the Animal, Nature (left it fhould vanifh away) would have it
contain'd in the Nervous coat of an Artery, which is ffive time more thicke than
the Coate of the veines, as Golen, out of Herophilus, hath recorded.

What the matter of it is.

It is furnifh'd with matter from the fubtile exhalation of the blood, and that aire
which we draw in breathing. Wherefore it doth easily and quickly perifli by im-
moderate difpafions of the fpirituous subftance, and great evacuations: fo it is
easily corrupted by the putrifaction of Humors, or breathing in of putrefaynre and
fiily vapours, which thing is the caufe of the fo fuddaine death of thofe
which are infected with the Pague. This spirit is often hindred from en-
tring into fome part by reafon of obftrEi£ion, fulncrce, or great inflaramations, wher-
by it followeth that in a fliorc fpace, by reafon of the decay of the fixed and inbred heat,
the parts doe eafily fall into a Gangrene and become mortified.

There is some doubt of the Natural spirits.

Besides thofe already mentioned, there are other fpirits fixed and implanted
in the fumar and prime parts of the body, which are natural, and Natives
of the fame place in which they are feared and placed. And becaufe they are al-
ofo of an Aery and fiery nature, they are fo joyned or rather united to the Na-
tive heat, that they can no more be feparated from it, than flame from heate; 
wherefore they with thefe that flow to them are the principall Instrumentes of
the Actions, which are performed in each feverall part; And thofe fixed fpirites have
their nourifiment and maintenane from the radical and firft bred moifture, which
is of an Aery and only substance and is as it were the foundation of thefe Spirits
and the inbred heat. Therefore without this moifture no man can live a mo-
ment. But alfo the Chief Instrumentes of life are thefe Spirits together with the
native heat. Wherefore this radical Moifture being difpafed and wafted,
(which is the heat, fodder and nourifhment of the Spirits and heate) how can
they any longer fubfift and remaine? Therefore the consumption of the na-
tural heate followeth the decay of this fweet and fubftance-making moifture,
and consequently death, which happens by the difpafing and revolving of natural
heat.
But since then these kinds of Spirits with the natural heat, is contained in the substance of each similar part of our body (for otherwise it could not persist) it must necessarily follow, that there be as many kinds of fixed Spirits, as of similar parts. For because each part hath its proper temper and encrease, it hath also its proper spirit, and also its own proper fixed and implanted heat, which heere hath its abode, as well as its Original. Wherefore the spirit and heat which is seated in the bone, is different from that, which is impact into the substance of a Nerve, Veine or such other similar part; because the temper of these parts is different, as also the mixture of the Elements from which they first arose and sprang up. Neither is this contemplation of spirits of small account, for in these consist all the force and efficacy of our Nature.

These being by any chance dissipated or wafted, we languish, neither is any health to be hoped for, the flower of life withering and decaying by little and little. Which thing ought to make us more diligent, to defend them against the continually effuse of the threefold substance. For if they be decayed, there is left no proper Indication of curing the diseases, so that we are often constrained, all other care laid aside, to betake our selves to the reforming and repaying the decayed powers. Which is done by meats of good juice, called to be concocted and distributed, good Wines and fragrant finnels.

But sometimes these Spirits are not dissipated, but driven in and returned to their fountaines, and so both oppreffe and are oppreffe; whereupon it happens we are often forced to dilate and spread them abroad by binding and rubbing the parts. Hitherto wee have spoke of these things which are called Naturall, because we naturally consist of them; it remaineth that we now say something of the Adjuants and associates by familiarity of Condition.

<table>
<thead>
<tr>
<th>Age: of which, by reason of the similitude of the Argument, we were constrained to speake when we handled the Temperatures.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Adjuncts and Associates to things Natural, are</td>
</tr>
<tr>
<td>Colour of which we have already spoken.</td>
</tr>
<tr>
<td>The Conformation of the instrumentall parts;</td>
</tr>
<tr>
<td>Time, whose force we have also considered.</td>
</tr>
<tr>
<td>Region.</td>
</tr>
<tr>
<td>Order of Diet and Condition of life.</td>
</tr>
</tbody>
</table>

**CHAP. XI.**

**Of the Adjuncts of things Natural.**

But there is no other thing than the distinction of Male and Female, in which this is most observable, that for the parts of the body, and the fire of these parts, their is little difference between them; but the Female is colder than the Male. Wherefore their spermaticall parts are more cold, lofe and moylt, and all there natural actions lesse vigorous and more depraved.

The Nature of Eunuches is to be referred to that of women, as who may seeme to have degenerated into a womanish nature, by deficiency of heate; their smooth body and peace, and thirle voyce, doe very much asemble women. Notwithstanding you must consider that there be some Manly women, which their manly voyce and chinne covered with a little hairiness doe argue; and on the contrary, there are some womanizing, or womanish men, which therefore we terme dainty and effeminate.
The Hermaphrodite as of a doubtfull nature and in the middle of both sexes seems to participate of both Male and Female.

The Colour which is predominant in the habite and superificies of the body and lyes next under the skinne, shewes the temperament of what kinde soever it be; for as Galen notes in Comment, ad Aphor. 2, sect. 1. Such a colour appears in us, as the contained humor hath. Wherefore if a roile how colour the cheeks, it is a signe the body abounds with blood, and that it is carried abroad by the plenty of Spirits. But if the skinne be dyed with a yellow colour, it argues Choler, is predominant, if with a whitish and pallide hew, Phlegme; with a fable and dusky, Melancholy. So the colour of the excrements which are according to Nature is not of the leaft consideration. For thus, if an ulcer being broken send forth white matter, it argues the soundness of the part from whence it flowes; but if famous or bloody, green, blackish, or of divers colours, it shewes the weaknesses of the solid part, which could not alTIMIate by concoction the colour of the excrementious humor. The like reason is of unnaturall Tumors: For, as the colour, so the Citation of the Horse cauing or accompanying the swelling commonly is.

The Conformitie, and integritie of the Organicall parts is considered by their figure, greatnesse, number, situation and mutuall connexion. Wee consider the figure, when we say almost all the externall parts of the body are naturally round, not onely for shew, but for necessitie, that being smooth, and no way cornered, they should be leffe obnoxious to externall injuries; wee speake of Greatnesse, when wee say, some are large and thicke, some lancke and lean. But wee consider their number, when we observe some parts to abound, some to want, or nothing to be defective or wanting. Wee infinuate site and connexion when wee search, whether every thing be in its proper place, and whether they be decently fitted, and well joyned together.

We have handled the varieties of the foure feasons of the yeare, whe we treated of Temperaments. But the consideration of Region (because it hath the fame judgment that the Aire) shall be referred to that disquisition, or enquiry which we entend to make of the Aire, amongst the Things not natural.

The Manner of life and order of Diet are to be diligently observed by us, because they have great power either to alter, or preserve the Temperament. But because they are of almost infinite variety, therefore they scarce seeme possible to fall into Arts, which may prosequeute all the differences of Diet and vocations of life. Wherefore if the Calling of Life be laborious, as that of husbandmen, Marinners, and other such trades, it strengthens and dryes the parts of the body. Although those which labour much about Waters, are most commonly troubled with cold and moist diseases although they almost kill themselves with labour.

Againe, those which deal with Metalls, as all forts of Smithies, and those which cutt and worke brasse, are more troubled with hotte diseases, as feavers. But if their Calling be such as they fit much, and worke all the day long sitting at home, as shoemakers, it makes the body tender, the flesh effeminate and causeth great quantity of excrements. A life as well idle and negligent in body, as quiet in minde, in all riotousnes and excesses of Dyert, doth the same. For from hence the body is made subject to the stone, gravel and Gour.

That calling of life which is performed with moderate labour, clothing and dye, seemes very fit and convenient to preserve the natural temper of the body. The Ingenious Chirurgeon may frame more of himselfe that may more particularly conducte to the examination of these things. Therefore, the things natural, and those which are necre or Neighbouring to them being thus briefly declared, the Order seemes to require that we make enquiry of Things not Natural.
CHAP. XII.

Of things not Natural.

Why they are called things not natural.

He things which we must now treat of, have by the latter Phisitions beene termed, Not natural; because they are not of the number of those which enter into the constitution, or compleature of mans body; as the Elements, Humors, and all such things which we formerly comprehended under the name of Natural: Although they be such as are necessary to preserve and defend the body already made and composed. Wherefore they were called by Galen Prefervers, because by the due use of them the body is preserved in health. Also they may be called doubtfull, and Neuters, for that rightly and fitly used they keepe the body healthfull; but inconsiderately, they cause diseases. Whereby it comes to pass that they may be thought to pertaine to that part of Phisick which is of preserving health, not because some of these things should be absolutely and of their owne nature wholesome, and others unwholsome, but only by this, that they are, or prove so by their convenient, or preposterous use. Therefore we consider the use of such like things from 4 conditions, quantity, quality, occasion, and manner of using, if thou shalt observe thefe, thou shalt ataine and effect this, that those things which of themselfes are as it were, doubtfull, shall bring certaine and undoubted health. For these 4 Circumstances doe so farre extend, that in them as in the perfection of Arte, the Rules which may be prescribed to preserve health are contained. But Galen in another place hath in 4, words comprehended these things not Natural, as things Taken, Applied, Expelled, and to be Done. Things Taken are those which are put into the body, either by the mouth or any other way, as the Aire, meat and drinke. Things Applied are those which must touch the body, as the Aire now mentioned, affecting the body with a diverse touch of its qualities of heat, cold, moisture or drynede. Expelled are, what things soever being unprofitable are generated in the body and require to be expelled. To be Done are labour, rest, sleepe, watching and the like. We may more distinctly and by expression of proper names revoke all these things to fixe; which are

Aire,  
Meat and Drinke,  
Labour and Rest,  
Sleepe and Watching,  
Repletion and Inanition, or things to be expelled, or retained and kept,  
Perturbations of the Minde.

CHAP. XIII.

Of the Aire.

How necessary for life the airc is.
What Aire is 
hoi;italr.

Three  things  are  understood  tinder  the  name  of  the  aire.

Aphor.  q,  t,  a.
The  force  of  the 
windes.

Now  the 
windes  ac-
quire  other  
faculties,  than  
they  naturally  
have.
The  Wefte-
windes  of  it  
time

What  force  
flars  have  on  the  aire.

Chap.  13.

is  hotter  than  ordinarie,  doth  with  a  new  warmth  overheate  the  heart,  lungs  and  spirits,  and  weaken  the  strength  by  the  disipation  of  the  spirits  too  much  attenuated;  so  being  too  cold,  in  like  manner  the  strength  of  the  faculties  faine  and  grows  dull,  either  by  suppreffion  of  the  vapours,  or  by  the  implification,  or  thickning  of  the  spirits.

Therefore  to  conclude,  that  Aife  is  to  be  esteemed  healthfull,  which  is  clear,  birefible,  and  pure,  free  and  open  on  every  fide,  and  which  is  farre  remote  from  all  carion-like  smells  of  dead  carcasses,  or  the  fench  of  any  putrifying  thing  whatsoever;  which  is  farre  diftant  from  flaming  pooles,  and  fennes  and  caves,  fending  forth  strong  and  ill  vapours,  neither  too  cloudy  nor  moist  by  the  nearneffe  of  some  river.

Such  an  Aire,  I  fay,  if  it  have  a  vernall  temper,  is  good  againft  all  difeafes.  That  aire  which  is  contrary  to  this  is  altogether  unhealthfull,  as  that  which  is  putrid,  fhuic  up,  and  preft,  by  the  ftraitneffe  of  neighbouring  mountaines,  infected  with  fome  noyfome  vapour.  And  because  I  cannot  profecute  all  the  conditions  of  the  aire,  fit  for  the  expelling  of  all  difeafes,  as  which  are  almoft  infinite,  it  shall  suffice  here  to  have  fet  downe,  what  we  muft  understand  by  this  word  Aire.

Physiitians  commonly  use  to  underhand  three  things,  by  the  name  of  Aire;  The  present  ftate  of  the  Aire;  The  Region  in  which  we  live;  and  the  (eafon  of  the  yeare.  Wee  fpoke  of  this  laft,  when  wee  treated  of  Temperaments.  Wherefore  wee  will  now  speake  of  the  two  former.  The  present  ftate  of  the  Aire,  one  while  for  fome  small  time,  is  like  the  Spring,  that  is  temperate  ;  other  whiles  like  the  Summer,  that  is  hot  and  drie;  other  whiles  like  the  Winter,  that  is  cold  and  moist;  and  fometimes  like  the  Autumne  which  is  unequal;  and  this  fliift  of  the  Aire,  is  the  caufe  of  many  difeafes.  When  upon  the  fame  day,  it  is  one  while  hot,  another  cold,  we  muft  expect  Autumnall  difeafes.  These  tempers  and  varieties  of  confitutions  of  the  Aire,  are  chiefly  and  principally  ftrirr'd  up  by  the  windes;  as  which  being  diffufed  over  all  ...  places  over  which  they  came  as  fnowie  places,  Scacs,  Lakes,  Rivers,  Woods,  or  sandy  plaines,  from  whence  they  may  borrow  new  qualities,  with  which  they  may  afterwards  poffefs  the  aire  •  and  fo  confequently  our  bodies.  * Hence  it  is  we  have  noted  the  Wefte-erne  winde  unwholfome,  and  breeding  difeafes  by  reafon  of  the  proper  condition  of  the  Region  from  whence  it  came,  and  fuch  that  is  cold  and  moist;  the  Oajeomes  finde  it,  truly  to  their  felfe,  hat  ic  fel-  

From  this  force  of  the  aire,  either  hurrfall,  or  helping  in  difeafes,  came  that  fa-
mous  observation  of  Gnaio  of  Caualis,  That  wounds  of  the  head  are  more  difficult  to  cure  at  Paris,  than  at  Avignion,  and  the  plain  contrarie  of  wounds  of  the  legges;  for  

the aire of Paris compared to that of Avignion is cold and moist, wherefore hurt
full and offensive to the wounds of the head. On the contrary, the same aire, because
it obstructs the spirits, intercusses the blood, condensates the humors, and makes them
lesse fit for defluxions, makes the wounds of the legges more caiue to be healed, by
reason it hinders the course of the humors, by whose defluxion the cure is hindered.
But it is manifet, that hot and drye places make a greater diftribution of the natural
heate, from whence the weakenes of the powers ; by which same reacon, the inhabi-
tants of such places doe not so well endure bloodletting, but more easily suffer pur-
gations; thorough, by reacon of the contumacie of the humor, caus’d by drin-
ke. To conclude, the aire changes the constitutions of our bodies, either by its
qualities, as if it be hotter, colder, moister, or drier; or by its matter, as if it be gro-
ser, or more fubtile than is fit; or corrupted by exhalations from the earth; or by a
fodaine and unaccustomed alteration, which any man may prove, who makes a fodo-
ad change out of a quiet aire into a stormy and troubled with many windes. But
because, next to the aire, nothing is fo necessary to nourifh mans body, as meate and
drinks, I will now beginne to fpake of them both.

CHAP. XIII.

Of Meate and Drinks.

The good
The good
The good
...
such as grow, need more frequent and plentiful nourishment, than old men; and also amongst young men of the like age, some doe rightly require more copious nourishment than others; that is, according to the quantity of their evacuations and custody. Certainly for gluttony, it is such as may be extended to all; but we all should take so much meat and drink, that our powers may be refreshed and not oppressed; for by the decree of Hippocrates, these be the two compepmatory ways of preserving health; nor to be over-filled with meat, and to be quicke to worke; and thus much of the quantity of meats. Neither must these who are either found, or fickle, have leffe regard to the qualities of their meats; and thefe are either the firll, as heating, cooling, moistening, drying; or the second, attenuating, increasing, obstructing, opening, or some other like, working according to the condition of their nature.

The manner of our diet is not onlye to be framed according to these, but also to be varied; for the present state of such as be in health, requires to be preserved by the use of like things. As hot and moist nourishment is to be prescribed to children, as to those which are hot and moist; and cold, and dry, to old men, as to those who are cold and dry; if to be that vulgar saying be true, that, Health delights in the use of like things. Yet because old age how greene and new begun howsoever it be, is of it selfe as it were, a disease, it seemes to be more convenient, both to truth and for necessity, which is somewhat worse, but more pleasant and familiar by custom; is to be preferred. Hence is it, that Countrie-men doe very well digest Beef, and Bacon, which commonly they ferred as in Hippocrates opinion, before better, but lesse pleasant and accustomed. Hence is it, that Country-men doe very well digest Beef and Bacon, which commonly they use, because the use of feavers, because a feaver is a dry distemperature. Therefore wee must diligently prie into the nature of the disease, that knowing it, wee may endeavour to abate its fury by the use of contraries.

But if custome (as they say) be another nature, the Physitian must have a great care of it, both in found and sick. For this sometimes by little and little and insensibly, changes our natural temperament, and in stead thereof gives us a borrowed temper. Wherefore if any would presently or sudenly change a custome which is sometimes ill, into a better, truly hee will bring more harme, than good; because all sudden changes (according the opinion of Hippocrates) are dangerous. Wherefore if necessity require, that we should withdraw any thing from our custome, we must doe it by little and little, that so nature may by degrees be accustomet to contraries without violence, or the disturbance of its usuall government. For that meat and drink which is somewhat worse, but more pleasant and familiar by custome, is to be preferred (in Hippocrates opinion) before better, but leffe pleasant and accustomet. Hence is it, that Country-men doe very well digest Beef and Bacon, which commonly they use; but will turne into nidorulent vapours, Partridge, Capons, and other meat of good nourishment, sooner than change them into good and laudable Chylus. The cause of which thing is not onlye to be attributed unto the property of thei strength, and as it were burning heate, but much more to custome, which by a certaine kind of familiarity, causeth that meats of hard digestation are easily turned into laudable blood. For the force of custome is so great, that accustomet meats are more acceptable, whereby it comes to passe, that while the flomacce delights in them, it more fitteyly embraces them, and happily digesteth them, without any trouble of loothing, vomiting, or heavinesse. All the contrary meats and happen in the use of meats which are unpleasent to the taste and flapmace. For the ventricles abbreviating those things, makes manifest how it is troubled by its acide and nidorulent belchings, loothing, nauseous, vomit, heaviness, paine of the head, and trouble of the whole body.

Wherefore we must diligently enquire, what meats the Patient chiefly delighted in, that by offering them, his appetite languishing by reason of some great evacuation, vomit, or the like, may be stirred up. For it will be better and more readily restored by things acceptable, though they be somewhat worse, as we noted a little before out of Hippocrates. By which words hee plainly taught, that it is the part of a good...
good and prudent Phyfition to subfecribe to, and pofe the palate of his patient.

But feeing that order is most beauteous in all things, it is truly very neceffary in eating our meates: for how laudable foever the meates bee in their quantity and quality, however familiar by use, and grateful by cuftome, yet unless they be eaten in due order, they will either troubl the stomacke, or be ill, or slowly and difficultly coëcted, whereas we must diligently obferve, what meates must be eaten at the firft, and what at the fecond courfe, for thofe meates which are hard to coëct, are not to be eaten before thofe which are eafy of digeftion; neither drie and afftringent things, before moiftening and loofing.

But on the contrary, all flippere, fat, and liquid things, and which are quickly changed ought to goe before, that the belly may be moiftened; and then afftringent things must follow, that the stomacke, by their helpe, being thus drawn together, may more fleetly comprehend the meate on every fide, and better performe the Chyfification by its proper heat uniting and joyned together.

For this caufe Hippocrates Lib.de quidam acutis, commands thofe things to be always eaten in the morning, which are fit to loofen the belly, and in the evenings fuch as nourife the body. Yet notwithstanding drinke ought not to preceede, or goe before meate, but on the contrary meate must preceede drinke, by the order prefcribed by him.

Whether ought we in our eating to have leffe care of the time, than we have of the order: for the time of eating of fuch as are healthfull, ought to be certaine and fixt, for at the acquainted hour, and when hunger preftes, any ftrange man, and which is at his owne dispose may care, but exercife and accustomed labours ought to goe before; for it is fit, according to the precept of Hippocrates, that labour preceede meate, whereby the excrements of the third coëcition may be evacuated, the native heart increafed, and the solid parts confirmed and strengthened, which are three commodities of exercife very neceffary to the convenient taking of meate. But in fiecle persons we can fcarce attend, and give heed to thefe circumftance of time, and accustomed hour of feeding: for that Indication of giving meate to the fickte, is the belt of all, which is drawn from the motion of the difeafe, and the declining of the fit; for it you give meate in feavers, fpecially the fit then taking the Patient, you nourife not him, but the difeafe. For the meate then eaten, is corrupted in the stomacke, and yeilds fit matter for the difeafe. For meate (as we noted before out of Hippocrates) is strength to the fouldier, and a difeafe to the fickte, unleffe it be eaten at convenient time, and diligent care be had of the strength of the Patients, and greatneffe of the difeafe.

But neither is it convenient that the meate fhould be fimple, and of one kinde, but of many forts, and ol divers difhes dreffed after different forms, left nature by the continual and hatefull feeding upon the fame meate, may at the length loath it, and fo neither flightly containe it, nor well digeft it; or the stomacke accustomed to one meate, taking any loathing thereat, may abhorre all other: and as there is no defire of that we do not know, to the dejected appetite cannot be delighted and flirled up, with the pleaflure of any meate which can be offered. For wee must not credit thofe superflitious, or too nice Phyfitions, who thinke the digeftion is hindered by the much variety of meates.

The matter is farre otherwife, for by the pleaflure of what things foever the stomacke allured doth require, it embraces them more flightly, and concocts them more perfectly. And our nature is defirous of variety.

Moreover, feeing our body is compos'd of a folid, moift, and airy fubftance, and why variety it may happen, that by fo many labours, which we are compelled to undergoe, as great a fatisfaftion and fulfaftion in this life, one of thofe may fuffer a greater diffipation and loffe than another; therefore the stomacke is neceffarily compelled to fecke more variety, left anything fhould be wanting to repaire that which is wafted. But alfo the age and feafon of the yeare, yeild Indications of feeding, for fome things are convenient for a young man, fome for an old, fome in Summer, fome in Winter. Wherefore we ought to know what be fitts each age and fefion. Children need hot, moift, and much nourifhing, which may not onely fuffice to nourife, but encreafe the body. Where-
fore we ought to know what befits each age and season. Children need hot, moist, and much nourishment, which may not only suffice to nourish, but encrease the body. Wherefore they will endure fasting, and of them, especially those who are the most lively and spirituell. With old men it is otherwise, for because their heat is small, they need little nourishment, and are extinguished by much. Wherefore old men easily endure to fast, they ought to be nourisht with hot and moist meates, by which their solid parts, now growing cold and dry, may be heated and moistened, as the sweet nourishment of such like meates. Middle aged men delight in the moderate use of contraries to temper the excess of their too acute heat. Young people as temperate are to be preferred by the use of like things.

The manner of diet in Winter must be hot and inclining to drink. Wherefore then we may more plentifully use roast meates, strong wines and spices, because in the Winter season we are troubled with the cold and moist air, and at the same time, have much heat inwardly; for the inner parts, according to Hippocrates, are naturally most hot in the Winter and the Spring, but feverish in Summer; so the heat of Summer is to be tempered by the use of cold and moist things, and much drink. In the temperate Spring all things must be moderate; but in Autumn, by little and little, we must pass from our Summer, to our Winter diet.

Chap. XV.

Of Motion and Rest.

What motion signifies.

There kinds of frictions. Hard.

Indifferent.

The use of exercises.

What the best time for exercise is.

Ere Physicians admonish us, that by the name of Motion, we must understand all sorts of exerceses, as walking, leaping, running, riding, playing at tennis, carrying a burden, and the like. Friction or rubbing is of this kind, which in times past was in great use and esteem, neither at this day is it altogether neglected by Physicians. They mention many kinds of it, but they may be all reduced to three, as one gentle, another hard, a third indifferent; and that of the whole body, or only of some part thereof. The friction is called hard, which is made by the rough, or strong preasure of the hands, sponges, or course and new linen cloth: it draws together, condenzates, bindes and hardens the flesh, yet if it bee often and long used, at length it rarifies, dissolves, attenuates and diminuites the flesh, and any other substance of the body, and also it causeth reflexion, and draws the excrements from one part to another. The gentle friction which is performed by the light rubbing of the hands, and such like, doth the contrary, as softens, relaxes, and makes the skinne smooth and unwrinkled, yet unless it be long continued it doth none of these, worthy to be spoken of. The indifferent kinds consisting in the mean between the other two, increaseth the flesh, swells or poues up the habit of the body, because it retains the blood and spirits which it draws and suffers them not to be dissipat.

The benefit of exercise is great, for it increaseth natural heat, whereby better digestion followeth, and by that means nourishment, and the expulsion of the excrements, and lastly, a quicker motion of the spirits, to perform their offices in the body, all the ways and passages being cleansed. Besides, it strengthens the respiration, and the other actions of the body, confomnes the habit, and all the limbs of the body, by the mutuall attraction of the one with the other, whereby it comes to passe they are not so quickly wearied with labour. Hence we see that Country people are not to be tired with labour. Hence we see that Country people are not to be tired with labour. Hence we see that Country people are not to be tired with labour. Hence we see that Country people are not to be tired with labour.

If any will reape these benefits by exercise, it is necessary that he take opportunity to begin his exercise, and that he seasonably desist from it, not exercising himself violently and without discretion; but at certain times according to reason. Wherefore the best time for exercise will be before meat, (that the appetite may be encreased by augmenting the natural heat) all the excrements being evacuated, left nature being hungry and empty, doe draw and influte the ill humours contained in the guts, and other parts of the body, into the whole habit, the liver, and other
nation, nor the crude humors and meats not well concocted be carried into the veins. The measure and bounds of exercise must be, when the body appears more full, the face looks red, sweat begins to break forth, we breathe more strongly and quickly, and begin to grow weary; if any continue exercise longer, stiffnesse, and wearinesse affayles his joints, and the body flowing with sweate suffers a loss of the spirits and humid substance which is not easily repaired; by which it becomes more cold, and leanes to deformitie.

The quality of exercise which we require, is in the midst of exercise, so that the exercise must be neither too slow and idle, neither too strong, nor too weak, neither too haify nor remisse, but which may move all the members alike. Such exercise is very fit for sound bodies. But if they be disordered, that sort of exercise is to be made choice of, which by the quality of its exercise may correct the distemper of the body, and reduce it to a certaine mediocrity. Whence are such men as are stuffed with cold, groffe, and vitious humors, shall hold that kind of exercise most fit for them, which is more laborious, vehement, strong, and longer continued. Yet so, that they do not enter into it before the first and second concoction, which they may know by the yellownes of their urine. But let such as are about with thinnne and cholericke humors choose gentle exercises, and such as are free from contention, not expect the finishing of the second concoction, for the more acrid heat of the solid parts delights in such haify concocted juices, which otherwise it would so burne up, all the gluttonous substance thereof being wafted, that they could not be adjoined, or fastened to the parts. For the repeating, or renewing of exercise, the body should bee so often exercised, as there is a desire to eate. For exercise stirres up and revives the heart which lies buried and hid in the body: For digestion cannot be well performed by a sluggifli heat, neither have we any benefit by the meate we eate, unleffe we use exercise before.

The last part of exercise begun and performed according to reason, is named * the ordering of the body, which is performed by an indifferent rubbing, and drying of the members, that the sweat breaking forth, the filth of the body, and such excrements lying under the skinne, may be allure and drawne out; and also that the members may be freed from stiffness and weariness. At this time it is commonly used by such as play at tennis.

But, as many and great commodities arise from exercise conveniently begunne and performed, so great harms proceed of idlenesse; for groffe and vicious juyces heaped up in the body commonly produce crudities, obstructions, stones both in the reines and bladder, the Goute, Apoplexie, and a thousand other diseases.

CHAP. XVI.

Of Sleepe and Watching.

Hat this our speech of Sleepe and Watching, which we now intend, may be more plain, we will briefly declare, what commoditie or discommoditie they bring, what time and what hour is convenient for both, what the manner of lying must bee, and the choice thereof; what the dreams in sleepeing, and what paines or heavinesse and cheerfulness after sleepe may pertain.

Sleepe is nothing else than the rest of the whole body, and the cessation of the Animal facultie from sense and motion. Sleepe is caufed, when the subfance of the braine is poffefsted, and after some fort overcome and dulled by a certaine vaporous, sweet and delightfome humidity; or when the spirits almost exhaust by performance of some labour, cannot any longer futfaine the weight of the body, but caufe rest by a necifary confequence, by which means nature may produce other from the meate by concoction turned into blood.

Sleepe
Sleepe fitly taken much helps the digestion of the parts, because in the time of rest, the heat, being the worker of all concoction, is carried backe to them, together with the spirits. Neither doth sleep only give ease to the wearyed members, but also leaffens our cares and makes us to forget our labours.

The night is a fit time to sleep and to take our rest in, as inviting sleep by its moisture, silence and darknesse. For the Heat and Spirits in the thick obscurity of night, are driven in and retained in the center of the body, as on the contrary by the daily and as it were friendly and familiar light of the Sun, they are allure & drawne forth into the superficies, and outward part of the body; from whence they leave sleeping and begin to wake. Besides also, which makes not a little, to that opportunity and benefit which wee locke for from sleep, the night season suffices for the worke of just and perfect concoction. Which is one reason amongst many that sleep on the day time may be hurtfull. For wee are wakened from our sleep by the heat and spirits called forth to the skinne either by the light, or noife on the day time, before that the concoction which was begun be finisshed. But that sleepe cannot but be light which comes without necessity of sleeping. Wherefore the concoction being attempted, but not perfected, the stomacke is full of crudities, distended with acide or soure belchings, and the braine troubled with groff vapours and excrementitious humidities. From whence proceeds paine and heavines of the head, and store of cold diseases. But although sleepe on the night time be wholsome, yet it is fit, that it be restrainer within the limits of an indifferent time. For that which exceeds hinders the evacuation of excrements both upwards and downwards: but in the mean time the heat which is never idle, drawes from them some portion or vapour into the veins, principal parts and habite of the body, to become matter for some disease. We must measure this time, not by the space of hours, but by the finishead the worke of concoction, which is performed in some, sooner than in other some. Yet that which is longest is perfected and done in seven, or eight hours. The ventricle subsiding and falling into its selfe and its proper coats, and being fleshie and leffemembraneous, is the hotter, and more powerfull to assimulate. The hart and liver being the workers of all digestion, is carryed backe to them, together with the spirits. Neither doth sleepe only give ease to the wearyed members, but also releafens our cares and makes us to forget our labours.

In sleeping we must have speciall care of our lying downe, for first we must lyee on our right side, that the heat may fall into the botome of our stomacke, which being fleshie and leffemembraneous, is the hotter, and more powerfull to assimulate.

Then a little after we must turne upon our left side, that so the Liver with its Lobes, as with hands may on every side embrace the ventricle, and as fire put under a Kettle, haften the concoction. Lastly towards morning it will not be unprofitable to turne againe upon our right side, that by this disposition the month of the stomacke being opened, the vapours which arise from the elixir of the Chyliun may have inter passage. Lying upon the backe is whoily to be avoided; for from hence the Reines are inflamed, the Stone is breed, Palpees, Convulsion, and all diseases which have their originall from the defluxion into the spinales narrow, and to the Nerves taking beginning from thence. To lyee upon the belly is not unprofitable for such as have used to lyee so, if they be not troubled with deslutions into the eyes; for to the humoe there will more easily flow into the part affected. But thus the worke of concoction is not a little furthered, because by that forme of lying, not onely the inward heat is contained and gathered together about the ventricle, but the encompassing warmnesse of the soft feathers of the bed, sides and affells it.

Neither are the Dreames which we have in our sleepe to be neglected, for by the diligent consideration of those, the affections and superfluous humours which have cheefe power in the body are maravoully knowne. For those who have raging Choler running up and downe their bodies while they sleepe, all things to them appear bright, shining, fiery, burning, full of noyse and contention. Thoso who abound with Phlegme dreame of floods, snowes, flowers and inundations and falling from high places. Thoso who are Melancholy dreame of gapings and gulfes in the earth, thick and obscure darknesse, smokes, caves, and all blacke and dismall things. But those whose bodies abound in blood dreame of marriages, dances, embracings.
Chap. XVII.

Way to Chirurgery.

Bracings of women, feasts, jests, laughter, of orchards and gardens; and to conclude, of all things pleasant and pleasant.

Alfo we muft obserue how the Patient doth after fleep, whether more lively and cheerfulfull, or more heavy, for by the opinion of Hippocrates,

Cum labore summo et lethalem colligit morbum:
Sin profito somni, nihil hinc lethalem timendum est.

Paine fleep, ensuing, an ill disease doth show:
But if fleep profit bring, no harne from thence will flow.

And as fleep fo watching, if it exceede measure, is hurtfull, for it hurts the temperatute of the braine, weakens the spirites, breedeth crudities, heaves of the head, falling away of the feath, and to conclude, it makes ulcers more dry, and fo confequently rebellious, difficult to heale, and maligne. There are many other things may be spoken of fleep and watching, but these may suffice a Chirurgion.

Chap. XVII.

Of Repletion, and Inanition, or Emptiness.

Here are, to bee short, two forts of Repletion, or of all excelle; one is of a simple qualitie, without any defluxion, or focietie of any humor, as appeares in distempers without matter: the other is of quantity and male, the body being diftended with too much meate, or too great quantitie of humors; from whence proceed an infinite number of diseases. They call the Repletion of meates, fatietie or fulneffe, and it is of two kinds; the one which is called Repletion or Fulneffe to the veflels; the other Repletion to the strength.

Wee judge of fatietie to the veflels, by the diftention and swelling of the veins and intrails, as the fromacke. Wee call fatietie to the strength, when the body is loaded with more meates, than it can well beare. But alfo there is a double Repletion of humors. For either it is of some one humor, or of all the humors; they call this by a peculiar name Plethora. For Galen defines Plethora to be an equall exceffe of all the humors. For if at any time he define a Pletora to be an exceffe of blood onely, then verily by the name of blood, he underfands an equall comprehension of the foure humors; as it is taught in Phyfick Schooles.

The Repletion which is caufed by fome one humor, is termed by Galen in the place before mentioned, Cacochymia, (that is, an evill joyce) whether the Repletion proceede of a Cholericke, Melancholick, Phlegmatick, or feverous humor.

Now Inanition, or evacuation is no other thing than the expulfion, or effufion of humors which are troublesome, either in quantitie, or qualitie. Of evacuations, fome are univerfall, which expell superfluous humors from the whole body; fuch are purging, vomitings, fweats, phlebotomie. Some particular which are performed only to evacuate fome part, as the braine by the nofe, palate, eyes, ears; the lungs by the weazon; the fromacke by vomite and fstoole, the guts by fstoole, the liver and the spleene by urine and ordure. These evacuations are fometimes performed by nature, freeing it felfe of that which is troublesome to it; otherwhiles by the Art of the Phyficion in imitation of nature.

And againe, one of these is good and requifite, when onely the humor which is hurtfull, either in quantitie or qualitie, is evacuated; The other not requifite, or immoderate
immoderate, when the profitable humors together with the unprofitable, are expelled.

But what evacuations ever these be, they are performed and done, either by the scratching and rubbing of the skinne, as when a cholerick, falt, or serous humor, or some windiness lying betweene the skinne and the fleth, cause itching. For by scratching the skinne, it gets passage out, which is manifest by the effluxe of a serous matter burning, or causing scabs and ulcers, if the humor be somewhat grosse, but insensible and not so manifest, if it be windiness, the skinne by that rubbing being rarefied, and the grosse flatulency attenuated. Wherefore they doe ill who hinder their Patients from scratching, unlesse they scratch so cruelly and hard, that there may bee danger, (by reason of the great heat and paine thereby caused) of some defluxion or falling downe of humors into the part.

Or these evacuations are performed by much matter evacuated from an opened Bile, or running ulcer, a Fistula, or such like fores. Or by sweats which are very good and healthfull, especially in sharp diseafes, if they proceede from the whole body, and happen on the criticall dayes. By vomit, which often violently drawes these humors from the whole body, even from the uttermost joints, which purging medicines could not evacuate, as wee may fee in the Palfie, and Sciatica, or Hippogoute. By spitting, as in all who are suppured either in the sides or lungs. By Salivation, or a Plegmatiacke fluxe by the mouth, as in those who are troubled with the French Pockes, By freeing and blowing the nofe; for by these the braine oppresseth with moisture, disordereth its selfe, whether it be done without, or with the help of fermentatories and errhines; wherefore children, and such as have somwhat moist brains purge themselves often this way. By hicke and belching; for by these the windiness contained in the stomache, is often expelled. By urine, for by this not only Feavers, but which is more to bee admired, the French-Pockes hath often beene terminated and cured.

For there have beene some troubled with the Pockes, in whom a fluxe of the vicious and venenate humor could not by motion of quicksilver be procured, either from the mouth, or belly; yet have beene wonderfully freed by abundancce of urine, both from danger of death and their disease. By bleeding; for nature hath often found a way for grievous diseases, especially in young bodies, by bleeding at the nofe, and by their courses in women. By a fluxe, or laske, purgation, sweats, insensible evacuation and transpiration; for so tumors, the matter being brought to suppuration, doe sometimes vanish away and are dissolved, both of their owne accord, as also by dissolving, or diffusing medicines. We doe the same by exercise, diet, hot-houses, long sleepe, waking, and shedding of teares. By fucking, as with cupping glasses and horfe-leaches in wounds made by venemous bitings.

In all such kinds of evacuations, wee must consider three things, the quantity, quality, and manner of evacuation. As for an example, when an Empyema is opened, the matter which runnes out, ought to bee answerable in proportion to the purulent matter, which was contained in the capacity of the breasts; otherwise, unlesse all the matter bee empyred, there may happen a relapse; the matter should be white, soft, equall, and nothing stinking: Lastly, you must let it forth not altogether, and at one time, but by little and little, and at severall times, otherwise not a little quantite of the spirits and heat doth flow out together, with the unprofitable matter, and so consequently a dissolution of all the powers.
Chap. XVIII.

Of the Perturbations, or Passions of the mind.

The Perturbations, are commonly called the accidents of the mind, because, as bodily accidents from the body, so may these be present and absent from the mind, without the corruption of the subject. The knowledge of these must not be lightly passed over by the Chirurgeon, for they stir up great troubles in the bodies, and yield occasion of many & great diseases of which things, Joy, Hope and Love, may give a apparent testimony. For by these motions the heat and spirits are sometimes gently, sometimes violently diffused over all the body, for the enjoying of the present, or hoped for good. For then the heart is dilated, as to embrace the thing beloved, and the face is died with a roly and lively colour. For it is likely, that the facultie is felfe is stirred by the object, by whose power the heart is felfe is moved.

For it is first necessary, before we be moved by any Passions; that the senses in their proper seats, in which they are seldom deceived, apprehend the object, and first as messengers carry them to the common sense, which sends their conceived forms to all the faculties. And then, that each facultie, as a Judge may a freh examine the whole matter, how it is, and conceive in the presented object some flow of good, or ill, to bee desired, or shunned. For what man that was well in his wits, did ever fall into a laughter, unless he formerly knew, or saw somewhat said or done, which might yeeld occasion of laughter. Therefore Joy proceeds from the heart, for the thing causing mirth or joy, being conceived, the facultie moves the heart, which shaken and moved by the facultie which hath dominion over it, is dilated and opened, as ready to embrace the exhilarating object. But in the mean time by the force of that dilatation, it sends forth much heat, and spirits together with the blood into all the body. A great part of which comming to the face, dilates it, the forehead is smoth and plaine, the eyes looke bright, the cheekes become red, as died with Vermilion, the lips and mouth are drawen together, and made plaine and smoth; some have their cheekes dented with two little pits (which from the effeds are called laughing cheekes) because of the contraction or curling, which the肌肉es suffer by reason of their fulnee of blood and spirits, all which to be briefe is nothing but to laugh.

Joy recreates and quickens all the faculties, flitures up the spirits, helps conception, makes the body to bee better liking, and fattens it, the heat, blood, and spirits flowing thither, and the nourizing dew or moisture, watering and refreshing all the members; from whence it is, that of all the Passions of the mind, this onely is profitable, so that it exceed not measure; for immoderate and unacustomed joy, carries so violently the blood and spirits from the heart, into the habit of the body, that fadsaine and unlooks for death ensues, by a speedy decay of the strength, the lasting fountaine of the vitall humour being exhausted. Which thing principally happens to those who are leffe heartie, as women and old-men.

Anger causeth the same effusion of heat in us, but farre speedier than joy; therefore the spirits and humors are so inflamed by it, that it often caues putrid feavers, especially if the body abound with any ill humor.

Sorrow, or griefe dries the body by a way quite contrary to that of anger, because by this the heat is so stratified, the heat being almost extinct, that the accumulated generation of spirits cannot be performed; and if any be generated, they cannot freely paffe into the members with the blood; wherefore the vitall facultie is weakened, the lively colour of the face withers and decays, and the body waftes away with a lingering consumption.

Fear in like sort draws in and calls backe the spirits, and not by little and little as in sorrow, but sedainely and violently; hereupon the face growes sedainely pale,
the extreme parts cold, all the body trembles or shakes, the belly in some is loofed, the voice as it were flales in the jawes, the heart beate with a violent pulfation, because it is almost oppreft by the heart, thronged by the plentiful of bloud, and spirits abundantly rushing thither: The hair also stands upright, because the hear and bloud are retired to the inner parts, and the utmost parts are more cold and drie than ume; by reason whereof the utmost skinne and the pores, in which the roots of the haires are fastened, are drawne together.

Shame. Shame is a certaine affection mixed, as it were, of Anger and Fear; therefore if, in that conflict of, as it were, contending passions, Fear prevail over Anger, the face waxeth pale, (the bloud flying backe to the heart) and these or these Symptoms rise, according to the vehement of the contracted and abated heart. But if on the contrary, Anger get the dominion over Fear, the bloud runnes violently to the face, the eyes looke red, and sometimes they even some at the mouth.

Shamefastnes. There is another kind of shame, which the Latines call Peresimut (see Shamefastnes) in which there is a certaine fluxe, and refolute of the heart, and bloud first recoiling to the heart, then presently rebounding from thence againe. But that motion is so gentle, that the heart thereby suffers no oppreffion, nor defect of spirits: wherefore no accidents worthy to be spoken of, arife from hence.

An agony. But an agony, which is a mixt passion of a strong feare, and vehement anger, involves the heart in the danger of both motions: wherefore by this passion, the vital facultie is brought into very great danger. To these five Passions of the minde, all other may be revoked, as Hatred and Discord to Anger: Mirth and Boasting, to Joy; Terrors jFrights and Swoundings, to Fear; Envy, Despaire and Mourning, to Sorrow.

Why the first figures of passions of the minde appear in the face. By these it is evident, how much the passions of the minde can prevail, to alter and overthrow the state of the body, and that by no other means, than by the compression and dilatation of the heart, they diffuse and contract the spirits bloud, and heat; from whence happens the dissipation, or oppreftion of these spirits.

The use of passions of the minde. Now wee have declared what commoditie and discommoditie may redound to man from these forementioned passions, and have shewed that anger is profitable to none, unlesse by chance to some dulle by reason of idlenesse, or oppreft with some cold, clammy and phlegmaticke humor; and feare convenient for none, unlesse peradventure for such as are brought into manifest and extreme danger of their life by some extraordinary sweat, immoderate bleeding, or the like unbridled evacuation. Wherefore it behoves a wise Chirurgion to have a care, lest he inconsideratly put any Patient committed to his charge into any of these passions, unlesse there bee some necessitie thereof, by reason of any of the forementioned occasions.
HAP. XIX.

Of things against Nature, and first of the Cause of a Disease.

Having treated of things natural, and not natural, now it remains we speak of things (which are called) against nature, because that they are such as are apt to weaken and corrupt the state of our body. And they be three in number; The cause of a disease, a Disease, and a Symptome. The cause of a disease is an affect against nature, which causes the disease. Which is divided into Internall and Externall. The Externall, originall or primitive comes from some other place, and outwardly into the body, such be meats of ill nourishment, and such weapons and hostilely wound the body.

The Internall have their essence and state in the body, and are subdivided into antecedent and conjunct. That is called an antecedent cause, which as yet doeth not actually make a disease, but goes near to cause one; if humors copiously flowing, or ready to flow into any part, are the antecedent causes of diseases. The conjunct cause is that which actually causes the disease, and is so immediately joined in affinity to the disease, that the disease being present, it is present, and being absent, it is absent.

Again, of all such causes, some are borne together with us, as the over-great quantity, and maligne quality of both the seedes, and the menstruous bloud, from diseasted Parents are causes of many diseases, and specially of those which are called Hereditary.

Other happen to us after we bee borne, by our diet and manner of life, a stroke, fall, or such other like. Those which bee bred with us, cannot be wholly avoided or amended; but some of the other may be avoided, as a stroke and fall; some not, as those which necessarily enter into our body, as Aire, Meate, Drinke, and the like.

But if any will reckon up amongst the internall, inherent, and inevitable causes, the daily, noyhourly distillation of the radicall moisture, which the natural heat causes continually presys upon, I doe not gainsay it, no more than that division of causes celebrated and received of Philosophers, divided into Materiall, Formall, Efficient, and Finall; for such a curious contemplation belongs not to a Chirurghon, whom I onely intend plainly to instruct. Wherefore that we write may suffice him.

CHAP. XX.

Of a Disease.

Disease is an affect against nature, principally and by it selfe, hurting and depraving the action of the part in which it resides. The division of a Disease is threelfold; Ditemperature, ill Conformation, and the Solution of Continuity.

Ditemperature is a disease of the simular parts dissembling, and changed from their proper and native temper. That digestion from the native temper, happens two ways; either by a simple ditemperature from the excelle of one qualitie; and this is fourefold; Hot, Cold, Moift, and Drie; or by a compound ditemperature, by the excelle of two qualities, which also is fourefold, Hot and Moift; Hot and Drie, Cold and Moift; Cold and Drie. Again, every ditemper is the fault of one simple and single quality, as an inflammation; or hath some vicious humors joyned with it, as a Phlegmon; again, a Ditemperature is either equall, as in a Sphatece; or unequall, as in a Phlegmon, beginning, or increasing. Ill Conformation is a fault of the organical parts, whose compoure...
is thereby depraved. This hath four kinds: the first is when the figure of the part is faultie, either by nature or accident, or some cavite abolished, as if a part, which nature would have hollow for some certaine use, doe grow or close up; or lastly, if they be rough, or smooth otherwise than they should, as if that part which should be rough, be smooth, or the contrary. Another is in the magnitude of the part increased, or diminished contrary to nature. The third is in the number of the parts, increased, or diminished; as if a hand have but foure or else fixe fingers. The fourth is in the fire and mutuall connexion of the parts, as if the parts which should be naturally united and continued bee pluckt asunder, as happens in luxations or the contrary. The third general kind of disease, is the solution of continuitie, a disease common, both to the simular and organical parts, acquiring diversity of names, according to the variety of the parts in which it resides.

CHAP. XXI.

Of a Symptome.

What a Symptome is.

There be three kindes of a Symptome properly taken. The first is, when the action is hurt. I say hurt, because it is either abolished, weakened, or depraved; so blindness is a deprivation, or abolishing of the action of seeing; dulness of sight, is a diminution, or weakening thereof; and a suffusion, such as happens at the beginning of a Caratd, when they think these, bakes, and such like bodies fliet too and fro before their eyes, is a depravation of the sight.

The second is a simple affect of the body, and a full fault of the habit thereof being changed, happening by the mutation of some qualities, such is the changing of the native colour into a red by a Phlegmon, and into a livid and blacke by a Gangrene; such is the filthy fteach the nose affected with a Pulpyus rends forth; the bitter taste, in such as have the laudnife, and the rough and rugged skinne in them which are Leprous.

The third is the fault of the overmuch retention of excrements which should be expelled, and expulsion of such as should be retained; for the evacuation of an humor profitable both in quantitie and qualitie, is against nature, as bleeding in a body not full of ill humors, nor Plethoricke; and also the retention of things hurtful in substance, quantitie and qualitie, as the Course in women, the urine, and the stone in the bladder.

CHAP. XXII.

Of Indications.

What an Indication is.

For Galen both define an Indication to be a certaine insinuation of what is to be done, or a quick &judicious apprehension of that which may profit or hurt. And as Faulconers,
There are three prime and principal kinds of indications, every of which is subdivided into many other. The first is from things natural. The second from those things which are termed not natural. The third from those things which are contrary to nature. Things natural, when they must be preferred by their like, and in the compusse of these are contained all the indications which are drawn from the nature of the Patient, that is, from his strength, temper, age, sexe, habite, custome, diet.

Things natural may be doubted as uncertaine, for one while they indicate the same things with things natural; that is, they coincide with the strength, temper and the rest; other whiles they conflict with things against nature, that is, they coincide with the disease. Wherefore Galen, when he saith, that indications are drawn from three things: The disease; The nature of the Patient, and the encompassing air, by proposing the familiar example of the aire, he would have us to understand the other things not natural, because we may think, or embrace them more or lesse as we will our selves, but we must, whether we will or no, endure the present state of the aire. Therefore the aire indicates nothing to us, or rather coincides; for if it nourish the disease, as conspiring with it, it will indicate the same that the disease, that is, that it must be preferred in the same state.

Things contrary to nature indicate they must be taken away by their contraries; therefore that we may more accurately and fully handle all the indications drawn from things natural, we must note, that some of these are concerning the strength of the Patient; by care to preserve which, we are often compelled for a time to forbear the cure of the proper disease, for so a great shaking happening at the beginning of an ague or fever, we are often forced to give subsistence to the Patient, to strengthen the powers taken by the vehemency of the shaking, which thing notwithstanding lengthens both the general and particular fits of the ague. Other pertain to the temper, other respect the habite, if the Patient be fatter, if fat, if well ferme, if of a rare, or denfe constitution of body. Other respect the condition of the part affected in Subittance, Constiunct, constemte, hardnesse, quicke or dull fente, forme, figure, magnitude, sit, connexion, principallity, service, function and use. From all these, as from notes the skilfull Chirurgeon will draw indications according to the time and place affected: for the same things are not fit for fore eyes, which were convenient for the cares, neither doth a Phlegmon in the jawes and throat admit the same.

What the indications of the parts affected do indicate.

From the age,

Indications from the age,  

Indications from the age,

Nunquam.
Moreover according to his decree the diseases of the Reines, and whatsoever pains molest the bladder, are difficultly healed in old men; and also reason prefers that a Quantaine admits no cure in Winter, and feares a Quotidian, and ulcers in like manner are more hard to heal in Winter; that hence we may understand certaine Indications to be drawn from time; and to increase the credit of the variety and certainty of Indications, some certaine time, and feasons in those times command us to make choice of Medicines for as Hippocrates testifieth;

Ad Canis ardorem facilis purgatio non ess.
In Dogdayes heare it is not good,
By purging for to clenfe the blood.

Neither shall thou so well preferibe a slender diet in Winter, as in the Spring, for the aire hath its Indications. For experience teacheth us, that wounds of the head are fare more difculty and hardly cured, at Rome, Naples, and Rochell in Xan
toine. But the times of diseases yeld the principall Indications, for some Medici
ces are onely to be used at the beginning and end of diseases, others at the increafe
and vigour of the disease. We must not contemne those Indications which are drawn
from the vocation of life, and manner of Diet, for you must otherwise deal with
the painfull Husbandman (when he is your Patient) which leads his life sparingly
and hardly, than with the Citizen who lives daintily and idlyly. To this manner of
life and Diet may be referred a certaine secret and occult property, by which many
are not onely ready to vomite at eating of some meats, but tremble over all their
bodies when they hear them but spoken of. I knew a prime Nobleman of the
French Nobility, who was so perplexed at the serving in of an Elee to the Table,
at the midift of dinner & amongst his friends, that he fell into a faint, all his powers
falling him. Galen in his booke de Constudinde tells that Aurelius the Periastickie died
fodainly, because compelled by the advice of those Physis he used, he drank a
great draught of cold water in the intollerable heat of a Feaver. For no other reason
faith Galen, than that because he knowing he had naturally a cold stomache from his
childhood, perpetually abstained from cold water.

For as much as belongs to Indications taken from things against nature; the Length
and depth of a wound or ulcer indicates one way, the figure cornered, round, equall
and smooth, unequall and rough, with a hollownesse straight or winding, indicate oth
erwise; the site right, left, upper, lower in another manner, and otherwise the force
and violence of antecedent and conjunct caufes. For oftentimes the condition of the
cauce indicates contrary to the disease, as when abundance of cold and grosse
humors cause and nourish a Feaver. So also a Symptome often indicates contrary
to the disease, in which contradiction, that Indication must be most esteemed, which
doth most urge, as for example, if a woundinge happen in a Feaver, the feaverish
burning shall not hinder us from giving wine to the Patient.

Wherefore these Indications are the Principall left and most noble which lead us,
as by the hand, to doe those things which pertaine to the cure, prevention and miti
gating of diseases. But if any object, that so curious a search of so many Indications
is to no purpose, because there are many Chirurgions, which fetting only one be
dore their eyes, which is drawne from the Essence of the disease, have the report and
fame of skilfull Chirurgions, in the opinion of the vulgar; but let him know that it
doeth not therefore follow, that this Indication is sufficient for the cure of all diseases; for we do not always follow that which the Essence of the disease doth indicate tobe done. But chiefly then, where none of the fore-rected Indications doth
refiit or gainefly; you may understand this by the example of a Febrifours, which by
the Indication drawne from the Essence of the thing requires Phlebotomy; yet who

We do not alwaays follow the Indication which is from the disease.
Chap. 22.

Way to Chirurgy.

is it, that will draw blood from a child of three monethes old? Besides, such an Indication is not artificial but common to the Chirurgeon with the common people. For who is it that is ignorant, that contraries are the remedies of contraries? and that broken bones must be united by joyning them together; but how it must be performed and done, this is of Arte and peculiar to a Chirurgeon, and not knowne to the vulgar. Which the Indications drawn from those fountains we pointed at before, abundantly teaches, which, as by certaine limits of circumstances, encompasse the Indication which is taken from the Effence of the difeafe, left any should thinke, we must truut to that onely. For there is some great and principall matter in it, but not all. For so the meanest of the common people is not ignorant, that the solution of continuity is to be cured by repairing that which is loft. But in what parts we may hope for restitution of the lost substantie, and in which not, is the part of a skilfull Chirurgeon to know and pronounce. Wherefore hee will not vainly bestowed his labour to cure the Nervous part of the Diaphragma, or Midriffe being wounded, or the Heart, small Guts, Lungs, Liver, Stomacke, braine or bladder; and that, I may speak in a word, Empetickes are not much more skilfull than the common people, although they do so much extoll themselves above others by the name of experience. For although experience be another instrument to find out things with reason, yet without reason, it will never teach, what the substantie of the part in which the disadit may be; or what the action, ufe, fire, connexion, from whence speciall and proper Indications are drawn; With which the Chirurgeon being provided and instructed shall not only know by what means to finde out a remadye, but also, left he may seeme to mocke any with vaine promises, he shall difcerne what difeases are uncurable, and therefore not to be medled withall.

But implicite, or intricate diseases require each to be cured in their severall order, except some one of them be desperate, or to urge and preffe that the Phyfition think it necessary after a preposterous order, to begin with it; although often he be forced to make some one of these diseas uncurable, or give occasion of causing some new one, into which traits we are necessarily compelled to fall, when, (for example) we determine to pull, or take away some extraneous body, for the performance whereof we are compelled to enlarge the wound. So we are forced by necessity to open the mecke of the bladder, (that so we may draw forth the stone therein contained with a wound which often degenerates into an uncurable Fistula. For that disaife which threatens danger of preuent death is of such moment, that to flunt that, it may be counted a final matter, and commendations for the fike to bring in other disadises, though uncurable. For if a convulfion happen by prickinge a Nerve which we cannot heale by any remedies, then by cutting the Nerve about wee end the convolution, but deprive the part into which that Nerve did goe, of the use of some voluntary motion. So if in any great joint there happen a Luxation with a wound, because there is danger of convolution by trying to restorte and let right the Luxated part, wee are forcke for cunning thereof, to attend the wound onely, and in the meane time to let alone the Luxation. Otherwise in implicite disadises, if there be nothing which may urge, or call us from the ordinary cure, we must observe this order, that beginning with that affair, which hinders the cure of the principall diseafe, we prosecute the rest in the same and their proper order, untill all the diseases being overcome we shall restore the part affected to its integrity. Therefore let us take for an example, an ulcer in the Leg, a Varix (or big swollen veine) and a Phlegmonous tumor round about it; and lastly, a body wholly plethorick and filled with ill humors; order and reason require this, that using the advice of some learned Phyfition we prescribe a convenient diet, and by what means we may, bring him to an equality by purging and blood-letting, and then we will cauterize in divers places the part where it is most swollene, then pretendly apply Leaches that so we may free it from the burden of the conjunct matter; then use Gauertyes to helpe the corruption of the bone, and in the meane time change the circular figure of the ulcer into an oval, or triangular; then at the length we will underteke the cutting of the Varix, and cure the ulcer which remains according to Arte, and lastly we will citrelize it. In all this whole time the Patient shall neither walke, nor stand, nor sit, but lie quietly, having his Leg orderly and decently rowled up, but
Chap. Wj!

When the temper of the part is different from the temper of the whole body, the manner of curing must be so tempered, that we increase the Dosis of hot or Cold medicines, according to the rataible proportion of the Indications requiring this or that. Therefore imagine the part ulcerated to be such, as that it is two degrees dryer than the just temper; but the whole body to exceed the same temper in one degree of humidity: reason and Arte will require, that the medicine applied to the ulcer be dryer by one degree than that which the part would otherwise require if it were temperate; but on the contrary let us suppose thus. The whole body to be one degree more moist than the temper requires, & the ulcerated part be one degree dryer, truly in this case the medicine that is applied to the ulcer by reason of the part it selfe, shall not be increased in drynnesse, but wholly compos'd and temper'd to the Indication of the ulcer, because the force of the moisture exceeding in the like degree, doth counterpoifie the superficial degree of drynnesse. But it is more cafe by an artificiall conjecture to determine of all such things, than by any rules or precepts.

To these so many and various Indications, I think good to add two other; the One from Similitude; the Other of a certaine crafty device, and as the latter Physitions term it, of a certaine subtile stratageme. We draw Indication from similitude, in diseases which newly spring up and arise, as which cannot be cured by Indications drawn from their contraries, as long as their Effece is unknowne and hid, wherefore they think it necessary to cure them by a way and Arte like those diseases, with which they seem to have an agreeing similitude of Symptomes and Accidentes; Our Ancestors did the same in curing the French Pockes, at the first beginning thereof, as long as they affirmulated the cure to that of the Leprofe, because of reason of that affinity, which both the diseases seeme to have. But we follow crafty devices and subtile counsells, when the Effece of the disease wee meeet with is wholly secret and hid, either because it is altogether of a hidden and secret nature, and which cannot be unfolded by manifest qualites, or else resides in a subject which is not sufficiently knowne to us, nor of a Physicall contemplation, as the Minde. For then we being destitute of Indications taken from the nature of the thing, are compelled to turne our cogitations to impofitures and crafty counsells; and they say this Arte and Craft is of such use in Melancholy affections and fictions, which are often more monstrous and deformed than the Chimera so much mentioned in the fables of the Ancients; to which purpose, I will not think much to recite two Examples. A certaine man troubled with a Melancholy disease, I know not by what error of opinion, had strongly persuaded him selfe that he was without a head; the Physiions omitted nothing, by which they might hope to take this mad opinion out of his minde. But when they had in vain tried all medicines, at length they devis'd this crafty, but profitable device, they fastened and put upon his head amost heavy helmet, that by the paine and trouble of his head nodding and drawn downe by that weight, he might be admonished of his error.

It is reported, another molested by the obstinacy and darknesse of the same disease, did very beleev'd, that he had horns upon his head; neither could he be drawn or diverted from that absurd and monstrous opinion, until that binding up his eyes, they miserably bruised and serrated his forehead with the bony roughness of the lower parts of an oxes horns, that so he began to believe by the painfull drawing of the blood that ran down his face, that those bloody horns, were forcibly plucked from him. Ingenious Chirurgions in imitation of these examples may in like cases doe the like. For that cause requires a man of a quicke apprehension and advice, who may give manifeste proofe of his diligence and skill by medicinal stratagems, as whoe forthwith can politicly device stratagems of divers sorts.

But, now comming to the end of this our tract of Indications, we must chiefly and principally observe; that of Indications some are Indicative, which absolutely and of themselves command this to be done; other coindicative, which indicate the same with the Indicative, and joyntly therewith to be done, but in some forts secundarily and not primitively; some are repugnant, which of themselves and their owne nature perswade quite contrary to that the indicative primitively did; or which diffwade us from doing that, to performe which the indicative did perswade us; other
correpugnant, which give their voice after the same form and manner with the repugnant against the indicative, as the coincidentive consent to and maintain them. Let this serve for an example of them all.

A Plethora, or plentitude of humors of its own nature, requires and indicates bleeding, the Spring-time persuade and coincides the same, but to this counsel is quite opposite and repugnant, a weak faculty, and childhood is repugnant.

Wherefore these four must be diligently weighed and considered when we deliberate what is to be done, and we must rather follow that which the indicative, or repugnant shew and declare, as what the disease and strength of the Patient require, than that which the coincidentive, or repugnant shall persuade, because they have a weaker and but secondary power of indicating, and not essential and primitive. But because the kinds of Indications are so many and divers, therefore that the knowledge of them may be more perspicuous and less confused, I have thought good to describe and distinguish them by this following scheme.
A Table of Indications.

The first is drawn from things natural which indicate their preservation by their like, of this kind are many since which are drawn, either

- An Indication in a certaine plane and compendious way which leads the Chirurgion to a certaine determinate and propofed end for the cure of the present difeafe, of which there are 3 kinds,

1. From the strength of preservation oftentimes the proper cure of the difeafe must be weighteld for where there is insipidity the Chirurgion should perform what he desires and expects.

2. From the effects, or if the Patient should be such a disposition of which the Chirurgion must have care, and if they scource from equality to reduce them to that which formerly they naturally were.

3. Dainti and delicate, slender and weak, low of stature.

- The second is drawn from things not natural which indicate their preservation by their unlike, another while the change by their contraries, for which there are 3 kinds.

1. From the native condition of the hurt or affailed part in which we consider, either

- The field whereof, so far as it is furniture we consider whether it be hot, cold, moist, dry, or as it is organisation, and then whether it be a principal and whole part on a superficial and lykable part.

- Or, the sores whether quiet or dull, by reason whereof the eye cannot endure such sharp & acrid medicines as simple hope can.

- Or the former, figure, magnitude, number, face, connection, affinity.

- From the age, for each age yields his peculiar indications, hence you may object such disaffails to be un measurable in old men, which are easily cured in young, others which in youth admire of no care, unless by the change of age and the ensuing temperament.

- From sex, for medicines work upon women more easily than upon men.

- From the time of the year, for some meats and medicines are fit in winter, some in summer.

- From the region, for as there are diversities of situations and habit of places, so also there are motions of humors, and manner of diseases: hence it is that wounds on the head at Paris, or fore shinns at Avignon are more difficult to he cured.

- From the times of diseases, for some things in the beginnings, others in the increafe, state and declining of the diseafe, are more convenient.

- From the manner of diet, for this, as the proper temper, must be preserved. Wherefore fuch must be fed either with what is dainty, than which their diets furnishing hardly, hereunto add certaine peculiar natures, which by a certaine hidden property are offended at this, or that kind of meate. For there are fome which not only cannot consent Prifane, Apples, Soles, Prestige, Water and such like, but can scarce bear them without nausea.

- From that which most urgent, from the caufe and without which the diseafe cannot betaun and removed, they be apprized, or mixed diseases we may draw or consider, or from these 3 heads.

The third is drawn from things contrary to nature which indicates their preservation by their contrary, another while the change by their contraries, for which there are 3 kinds.

1. From that which is most urgent. For instance, of paine, a desulsion into a part, or a Wass, or biggs, such as may draw indications or consider from these 3 heads.

- Bitterness of paine a desulsion into a part, a Wass, or biggs, such as we may draw indications or consider from these 3 heads.

- From the canse and from that, which the diseafe can not be taken away.

- To impieties, or natural diseases: we may draw indications from these 3 heads.

- Canse of the diseafe which two of these indicate & require medicines contrary to the diseafe.
Monsters sometimes happen in nature, as also in diseases, and in the events
and cures of diseases. I understand by monsters certaine marvellous successes
in diseases, or certaine ways of curing them, which Iwarve from Arte, and
happen besides reason, nature, and common use.

Alexander ab Alexandrin and Petrus Aelius tell, that in Apulia part of Italy, they
have a certain kind of Spider very frequent, the natives call it Tarentula, Petrus Aelius
calls it Phulægium. The inhabitants finde these Spiders in the fifth heat of
Summer to venenate and deadly, that whomsoever they touch with their virulent
biting, he presently, without he have speedy remedy, deprived of all sense and motion
falls downe, or certainly if he escape the danger of death, he leads the remnant of
his life in madnesse. Experience hath found a remedy by Musick for this to speedy
and deadly a disease; Wherefore as soon as they can they fetch Fidlers and Pipers
of divers kinds, who by playing and piping may make Musick, at the hearing where¬
of, he which was fallen downe by reason of the venomous bite, rises cheerfully and
dances so long to their measures and tunes, untill by the painfull & continued sharking
and agitation of the whole body, all the malignity is dissipated by transpiration and
sweates.

Alexander adds that it happened once in his sight, that the Musitions their windes &
hands failing them ceased playing, and then the Dancer presently fell downe as if hee
had beene dead; But by and by the Musick beginning anew, he rised up againe and
continued his dancing till the perfect diffipation of the venom. And that it hath hap¬
pened besides, that one not so perfectly healed, certaine reliques of the disease yet re¬
mainning, when a long time after he heard by chance a noife of Musitions, he presently
fell a leaping and dancing, neither could he be made to leave before he was perfectly
cured.

Some affirme according to the opinion of Asclepiades, that such as are Franckie
are much helped with a sweet and Musickall harmony. Theophrastus and Aelius Aelius
say that the paine of the Goutte and Sciancia are taken away by Musicke. And the
Sacred Scripture testifies, that David was wont by the sweet loued of the Harpe
to refreh and cafe King Saul when he was miserably tormenteds by his evil spirit.
Hesiodus in Oid. tells, that Creus the King of Lydia had a Sonne, which of a
long time could not speake, and when he came to mans estate he was accounted
dumb: but when a sudden with his drawne sword invaded his father (overcome
in a great fight, and the City being taken in which he was) not knowing that he
was the King, the young man opened his mouth endeavoring to cry out, and with
that striving and forcing of the Spirit hee broke the bonds and hinderances of
his tongue, and spoke plainly and Articulately, crying out to the Enemy that
hee should not kill King Creus. So both the Enemy withheld his sword, and
the King had his life, and his Sonne had his speech alwaies after.

Quintus Fabius Maximus, as Livye writes, was long and very sick of a quartaine
Ague, neither could he have sufficce from medicines administered according
to Arte, until skirmishing with the Allobroges hee flaked off his old feverish heat,
by a new heat and ardent desire of fighting. It was credibly reported to me
of late by a Gentleman of the Lord of Lisboe Chamber, that there was a
French Gentleman in Polonia who were grievously tormenteds with a quartaine
Fever.
An Introduction, or Compendium

50

Feaver, who on a time walking upon the banke of the River Wixell to take away the irkomenes of his fis, was thrust in jealf into the River by a friend of his that met him by chance, by which (although hee could swim, as hee also knew that thrust him in)hee conceived so great fear, that the Quarantine never troubled him after. King Henry the second commanded me to goe from the Camp at Amiens to the City Dorian, that I might cure those that were hurt in the conflict with the Spaniards, the Captaine S. Arbin although at that time he had a fit of a quarantine ague, yet would he be present at the fight, in which being shot through the side of his necke with a Bullet, hee was stricken with such a terror of death, that the heat of the Feaver was aswaged by the cold feare, and he afterwards lived freed from his Ague.

Francisius Valerio the famous Physitian of Arles, tells that John Bertam his fellow Citizen troubled with a Palpew of one side of his body for many yeares, his house taking fire, and the flame comming near the bed in which he lay, he stricken with a great feare, suddenly raised himself with all the force he had, and presently recovering the strength of his body, leaves out at the window from the top of the house, and was presently cured of his diseafe, for his motion being restored to the part, so that afterward hee went upright without any feene of paine, who lay unmoveable for many yeares before. Hee tells the like in the same place of his cousin John Sobrianus; hee was a long time lame at Auignion, by reason that the nerves of his hams were thrunk and drawn up so that hee could not goe; being moved with a vehement and sudden passion of anger against one of his servants whom he endeavored to beate, hee so stirr'd his body that forthwith the Nerves of his hams being distended, and his knees made pleyne hee began to goe and stand upright without any sense of paine, when hee had beene crooked about the space of six yeares before, and all his life after he remained found.

Galen tells hee was once fetched to stanch the bleeding for one who had an Artery cut nere his ancle, and that by his means hee was cured without any danger of an Aneurisma (a relaxation of a veinous vessel) and besides by that accidental wound hee was freed from most greivous paine of his hippe, with which he was tormented for four yeares before; but although this easment of the paine of the Sciatica happened according to reason by the evacuation of the conjunct matter, by the artery of the ancle of the same side being opened; yet because it was not cut for this purpose, but happened once by chance, I judged it was not much differing from this argument.

Pliny writes that there was one named Phalerus, which caufing up blood at his mouth, and at the length medicines nothing availing, being weary of his life, went unarmed in the front of the battell against the enemy, and there receiving a wound in his breast, fixed a great quantity of blood, which gave an end to his spitting of blood, the wound being healed, and the vein which could not containe the blood being condenfate.

At Paris Anno 1572. in Iuly a certaine Gentleman being of a modest and courteous carriage fell into a continuall Feaver, and by that means became Frantick, moved with the violence of which hee caufed himselfe headlong out of a window two storeys high, and fell full upon the shoulder of Vatera the Duke of Alencons Physitian, and then upon the pavement; with which fall hee cruelly bruized his ribs and hippe, but was restored to his former judgment and reason. There were present with the Patient besides Valerio, witnesse of this accident the Physitians, Alexi, Magnus, Dureus, and Martinus. The same hapened in the like diseafe, and by the like chance to a certaine Gafeoyne lying at the house of Agrippa in the Paved strete.

Othmanicus Doctor of Physicke of Mompelier and the Kings professour, told me that a certaine Carpenter at Broquera a village in Switzerland, being franticke cast himselfe headlong out of an high window into a river, and being taken out of the water was presently restored to his understanding.

But if we may convert casualties into counsell and Arte, I would not cast the Patient...
Patient headlong out of a window. But would rather cast them suddenly and thinking of no such thing into a great cistern filled with cold water, with their heads foremost, neither would I take them out until they had drunk a good quantity of water, that by that sudden fall and strong fear, the matter causing the Frenzy might be carried from above downwards, from the noble parts to the ignoble, the possibility of which is manifest by the forerocked examples, as also by the example of such as bit by a mad Dogge, fearing the water are often ducked into it to cure them.

Chap. XXIII.

Of Certaine judging and deceiffull wares of Curing.

Ere I determine to treat of these Impostors, who taking upon them the person of a Chirurgeon, doe by any means either right or wrong put themselves upon the workes of the Arte, but they principally boast themselves amongst the ignorant common sort, of setting bones which are out of joint and broken, affirming as falsely as impudently that they have the knowledge of these things from their Ancestors; as by a certaine hereditary right, which is a most ridiculous fiction; for out mindes when we are borne, is as a blank table, upon which nothing is painted. Otherwise what need wee take such labour and pains to acquire and exercise sciences? God hath endued all brute beasts with an inbred knowledge of certaine things necessary for to preserve their life, more than man.

But on the contrary hee hath enriched him with a wit furnished with incredible celerity and judgment, by whose diligent and laborious agitation he subjects all things to his knowledge. For it is no more likely, that any man should have skill in Chirurgery because his father was a Chirurgeon, than that one who never endured sweat, dust nor Sunne in the field, should know how to ride and govern a great horse, and know how to carry away the credite in tilting, only because hee was begot by a Gentleman and one famous in the Arte of Warre.

There is another sort of Impostors farre more pernicious and lefe suffcrable, almost boldly and insolently promising to reftore to their proper unity and seat, bones which are broken and out of joynt, by the onely murmuring of some concited charmes, so that they may but have the Patients name and his girdle. In which thing I cannot sufficiently admire the idlenesse of our Country-men so easily crediting so great and pernicious an error; so obfetving the inviolable law of the ancient Phyfitions, and principally of Divine Hippocrates, by which it is determined, that three things are necessary to the setting of bones dislocated and out of joint, to draw the bones asunder, to hold the bone receiving, firmly immovable with a strong and steady hand; to put the bone to be received into the cavity of the receiving. For which purpose the diligence of the Ancients hath invented so many engines, Gloffocomies and bands, lest that the hand should not be sufficient for that laborious worke; What therefore is the madneffe of such Impostures to undertake to doe that by words, which can scarce be done by the strong hands of so many Servants, and by many artificial engines?

Of late yeares another kind of Imposture hath sprung up in Germany, they beate into fine powder a stone within there mother tongue they call benewrck, and give it in drinke, to any who have a bone broken, or dislocated, and affirm that it is sufficient to cure them. Through the fame Germanie there wander other Impostors who bid to bring to them the Weapons with which they are hurt, they lay it up in a secret place and free from node, and put and apply medicines to it, as if they had the patient to dress, and in the meantime they suffer him to go about his busines, & impudently affine...
affirm that the wound heals by little and little by reason of the medicine applied to the weapon.

But it is not likely that a thing inanimate which is destitute of all manner of sense, should feel the effect of any medicine; and less probable by much, that the wounded party should receive any benefit from thence. Neither if any should let mee see the truth of such juggling by the events themselves and my owne eyes, would I therefore believe that it were done naturally and by reason, but rather by charmes and Magick.

In the last assault of the Castle of Hisdin the Lord of Montigu the elder was shot through the breast with a Musket bullet. I had him in cure together with the Physitians, and Chirurgions of the Emperor Charles the first and Emanuel Philibert the Duke of Savoy, who because hee entirely loved the wounded prisoner, caused an assembly of Physitians and Chirurgions to confer of the best means for his cure. They all were of one opinion, that the wound was deadly and incurable, because it passed through the midst of his lungs, and besides had cast forth a great quantity of knotted blood into the hollowness of his breast.

There was found at that time a certaine Spaniard, a notable Knave, and one of those Impostors who would pawnse his life, that hee would make him sound; wherefore this Honorable Personage being in this desperate case was committed to his care. First of all, bee bid they should give him the Patients shirte, which hee tore into strips and pieces, which presently framing into a Crofte, hee laid upon the wounds whispering some conceited or coined words, with a low murmure. For all other things hee wished the Patient to rest content, and to use what diet hee pleased, for hee would doe that for him, which truly, he did. For hee care nothing but a few Prunes, and drunk nothing but small beere; yet for all this the wounded Prince died within two dayes; the Spaniard flipt away, and so leaped hanging. And whilst I opened the body in the sight of the Physitians and Chirurgions to embalm him, the signs and accidents of the wound did evidently and plainly appeare to be as we had pronounced before.

And there be also other juggling companions of this tribe, who promise to cure all wounds with Linse, or Tents either dry, or macerated in oyle, or water, and bound to the wound, having murmured over some charm or other, who have had sometimes, good success, as I can witnesse. But the wounds upon which triall was made were simple ones, which only required union, or closing for to perfect the cure. So verily the bones of beasts when they be broke, grow together by the onely benefit of Nature. But when the afeed shall be compounded by diversity of Symptoms, as a wound with an ulcer, inflammation, conflation and fracture of a bone, you must hope for no other from Tents or Lints, nor charmes than death. Therefore the common sort who commit themselves to these Impostors to be cured, doe not only injure themselves, but also hurt the Common-wealth, and the common profit of the Citizens; for whose good and justice fake a prudent Magistrate ought to deprive impostors of all freedom in a free and Christian common-wealth.

Witches, Conjurers, Diviners, Soothsayers, Magitians and such like, boast of curing many diseases; but if they doe or performe any thing in this kind, they doe it all by flights, subtilties and forbidden Arts, as Charms, conjurations, Witches, Charactaers, Knoss, Magidcal Ligatures, Rings, Images, Poydons, lace dyed croffe, and other damnable tricks, with which they pollute, pervert and defame the prime and sacred Arte of Physick & that with the danger of mens lives. Who certainly are to be banished by the laws of our country, especially seeing it is decreed in

Desteron.18. Maffes Law. Let none be found among you that useth witchcraft, or a regarder of times, or a maker of the flying of Fowles, or a Sorcerer or a Charmer, or that consulteth with Spirits, or a Soothsayer, or that asketh counsel at the dead; for all that doe such things, are abomination to the Lord, and because of these abominations the Lord thy God doth call them out before thee, But the Miracles of our

our Lord Jesus Christ the Sonne of God, and of his Saints and Apostles in curing diseases beyond nature and all Arte, are of another kind, which we ought to believe to firmly and constandy, that it should be counted an impiety for a Christian to doubt of them. All holy writings are full of these, as to give sight to the blinde, hearing to the deaf, power to goe to those sick of the Palsey, to drive forth Devils, to cure the Leproty, to give fruitfullnesse to weomen, to raise the Dead, and performe by the holy Ghost other Miracles which exceed the condition and law of Nature, whom here we earnestly intreat to free and protect us from uncleane Devils and the spirits of diabolicall deceit, and to give us the minde that we may will and be able alwayes to aspire to Heaven and fallen the hope, safety and anchor of all our fortunes in God alone. Amen.

The End of the first Book.
Before I come to speake of the Anatomy of mans body, I have thought fit to say a little of the nature of brute Beasts.

There is betweene beasts a great deale of difference by nature; for of these, some are hardy and bold, others fearefull; some wilde and savage, others tame; some walking in herds, others wandering alone; some covered and defended with thorns and scales, as the Crocodile, the Tortois and many kinds of fift, others have stings and prickles.

The Horse hath his hard and strong hoofes, his crell (as being a generous beall) befeft with a thicke and harsh mane. The defence of the magnanimous Lion, are his teeth, his crooked paws and taile; Bulls are formidable by their horns; the Boare by his tuckes standing out, as it were natural hunting speares. The Hare being a timorous creature, is naked and unarmed, but in recompence thereof nature hath made her timble and swift of foot. For what the more noble and courageous beasts have in armes, is supplied in the fearful by nimblenesse and celerity. Infinite are the other endowments of brute beasts, and such as can hardly be imagined, or described. For if wee diligently search into their nature, wee shall observe the impressions and shadowes of many vertues, as of magnanimitie, prudence, fortitude, clemency, and docility: for they entirely love one another, follow those things that are good, shun methothes that are hurtfull, and gather and lay up in store those things that are necessary for life and food. Lastly, they give undoubted prefigues of the weather, and Aire. They have taught men many things, and are of a most exquisite and quicke fence; of rare are in vocall mufick, prudent and careful for their young, and faithfull lovers of their native foile. They are religiously observant of the rights of friendship and chastie. They have their weapons whereby they are prepared, both to invade, and to defend themselves being invaded; they submit themselves to the discipline of man, pacifie and imitate his speecch, and mutually prattle and chant one to another. They have a kind of weale-pullicke amongst themselves, and

know
know how to preserve their present welfare, and to depell the contrary, being in this way the owne Counsellors, and not tutored by man. Yea man is beholden to them for the knowledge of many wholesome things. The consideration of which bred to great a doubt amongst the ancient Philosophers, that it was a question amongst them, whether beasts had use of reason, or no? Therefore also the wise Salomon sends us for examples of parfitomic and diligence unto the Ant or Pifmire; and Esaias in exprobration of the people of Israel for their ingratitude and rebellion against God, sends them to the Ox and Asle, for they doe not only know, but reverence their Masters.

But from whence is the knowledge of these medicines, wherewith the Ar't of Physicke is so richly adorned, but from brute beasts, as Pliny affirmeth. The inftallable vertue of the herbe Dittamum, in drawing darts out of the fleshe, was taught us by the Hart, who wounded with the Huntmans darts or arrows, by means hereof draws out the weapons which remains sticking in her. Which is likewise practised by the Goares of Canadis, as Aristotele writeth. The wonderfull effect which Ceclundus hath upon the figh, was learnt by the prattife of Swallowes, who have bin observ'd with it to have beenmeared, and to strengthened the eyes of their young, Serpents rubbe their eyelids with fennell, and are taught by that means to quicken and refresh the decaying figh of their eyes. The Tortois doth defend & strengthen her felle against the bittinge of Vipers, by eating of favorie. Bears by eating of Pifmires, expell that poifon that they have contracted by their ufe of Mandrakes. And for correc- tion of that drowzine and doze which growes upon them by their long sleepe in their dens, they eate the herbe Arot (1) Cuckooint. But the Art they ufe in the catching and catching of Pifmires is very pretty, They goe softly to the holes or hides of the Pifmires, and there lay themselves all their length upon the ground, as if they were dead, hanging out their tongue wet with their foame, which they draw not againe into their mouth, before they feele them full of Pifmires, which are induc't by the sweetneffe of the foame: And having taken this as a purging medicine, they expell by the guts, those ill humors wherewith they were offended. Wee fee that Dogges give themselves a vomit, by eating of a kinde of grasse, which is from thence called Dogge-grasse. Swine, when they finde themselves fickke, will hunt after small or river lobsters. Stockdoves, Blackbirds, and Partridges, purge themselves by bay leaves. Pigeons, Turtels, and all sort of Pullen, disburden themselves of groffe humors, by taking of Pellarity of the wall. The bird Ibis (being not much unlike the Storke) taught us the ufe of Clifiers. For when he finds himfelfe opprefled with a burden of hurtfull humors, he fills his bill with saltwater, and so purgeth himfelfe by that part, by which the belly is fett discharged. The invention of the way of remov- ing the Cataract of the eye, wee muft yeeld unto the Goate, who by ftrilling by chance against the thorny busses, pulls off the Cataract which hinders the figh, and covers the ball of the eye, and fo recovers his figh. The benefit of Phlebotomie, we owe unto the Hippotamus or River-horse, being a kinde of Horfe, and the inhabi- tant of the river Nilus; who being a great devourer, when hee finds himfelfe furruged with a great deale of blood, doth by rubbing his thigh againft the sharpe fands on the banke-side, open a veine, whereby the superfluous blood is discharge'd, which he fropeth likewife when it is fit, by rowling himfelfe in the thkke mudder. The Torrois having chanced to eate any of the lleth of a Serpent, doe make orizmus and marjeron her Antidote. The ancients found helpe from brute beasts, even against the dreadfull and none-fparing force of lightning; for they were of opinion that the wings of an Eagle were never fincke with lightning, and therefore they put about their heads little breathes of these feathers. They were persuaded the fame thing of the Scafe, or Sea-calf, and therefore were wont to encapable their bodies with his skinne, as a moft certaine safegard against lightning. It was a thing too long, and laborious, to speake of all those other muniments of life and health observed here and there by Aristotele and Plinie) which we have learnt of brute beasts. I will therefore end this Chapter, after that I have first added this; That we are beholding to beasts not only for the skill of curing diseases, and of prefervation of health, but for our foode, our raiment, and the ornament and beautifying the bodies.
Of the Excellency of Man.

Of the Faculty of brute Beasts in Presaging.

The first knowledge and skill of Prognostication, and observation of weather by the Animals, was first delivered unto us from beasts of the land and water, and from fowl. For we see in daily observation, that it is a signe of change of weather, when Lambs and Lamisses doe butt at one another with their homses, and playing wan-
ronly doe kickie, and keep up their hecctes. The same is thought to bee presaged when the Ox licking himselfe against the baire, and on the sodaine fills the Aire with his howling, and smells to the ground, and when he feedes more greedily than he used to doe. But if the Pimaries in great multitudes fetch their prey so hastily, that they name and tumble one upon another in their narrow pathes, it is thought a signe of raine; As is also the bulke working of Moles, and the Cats rubbing and throaking of her head and necke, and above her ears, with the bottome of her feetes, Alfo when Fishes play and leape a little above the water, it is taken for a signe of raine. But if the Dolphins doe the same in the sea, and in great companies, it is thought to pre-
age a sodaine flamore and tempeft. Whereby the Marriners are warned, we all can pos-
sible for the safety of themselves and their ships, and if they can, cast Anchor.
And it is sufficiently knowne what the louder croaking of Frogges than ordinary
portends. But the facultie of Birds in this kind of presaging is wonderfull. If Cranes flie through the aire without noise, it is a signe of faire weather, and of the contrary, if they make a great noise and flie striagingly. As also if Sea-fowlie flie faire from the sea, and light on the land. The crie or fretching of Owles portends a change of the present weather, whether howl or faire. Plutarch saith, that the loude cawing of the Crow beroekes windes and flowres, as also when he flappes his bide with his wings. Geese, and Ducks, when they dive much, and order, and prune, and picke their feathers with their blackes, and crie to one another, forcell raines; and in like manner Swallowes when they flie to low about the water, that they wet thenselves, and their wings. And the Wren, when he is obseverd to sing more sweetly than usual, and to hop up and downe. And the Cocke when he chants, or rather crows presently after the setting of the Sunne. And Geese, and Pheas, when they bite more than ordinary. If the Herne shave aloft into the aire, it betokeneth faire weather, if on the contrary be flie close by the water, raine. If Pidgeons come late home to the Dove-houle, it is a signe of raine. If Birds flie in the evening, they forewesh wet weather. And lastly, the Crocodile lays his egges in that place, which must be the bounds of the overflowing of the river Nilus. And therefore he that firft mettes with these egges, rel the red of the countrey people, and thows them how high the flood will rise, and what inundation it will make upon their grounds, A thing most worthy of admiration, that in this monster, there should be that strong facultie of
presaging.

Of the Industry of Fishes.

Any sea Fishes, when they fee a tempest coming, doe gravell or balaf the bide, to the end they may not be toss'd up and downe at the pleasure of the wayes. Others when the fury of the sea is at the high, hide themselues in the holes of rockes, but in that they swim against the freame, they doe it, for this cause and reason, that he force of the freame, and the floud may not take from them, and strike off their scales, and that their gills may not fill with water which would hinder their swimming, and intercept their respiration. As by the same advice Cranes flie against the wind, whereas if they should flie downe the wind, their feathers would be displaced and broken, and they would not be able to flie.
Of the industry of Birds in the building of their nests.

The industry of Birds in the building of their nests, is such, that it doth farre exceede the art and skill of all Masons, and Architects. From whence it is become a Proverbe, "Thus men know, and can doe all things but make Birds nests." They are built within with wool, and feathers, and such kindes of soft things, which are as a kinde of a paller for the young ones. Swallows build their nests in a round forme, that they may be the more firme, and leffe subject to be hurt by any thing that shall strike against them, and likewise more capacious. They chuse their matter out of dirt and chaffe (interlacing it with many strawes) as is were their plaster, or lime. Those that build in trees, doe make choife of the soundest boughes, as if they meant to have them as a sure foundation for the building which they should erect thereon. The Cocke and the Henne doe by turns set over their egges, and likewise fetch their mate, interchanging each others labour, neither doe they ever forfake their young, before they are able to get their owne living. I had at my house a great number of Sparrowes nests in earthen pots, And when the young ones began to wax pretty bigge, and to be covered with feathers, I made the whole nest be taken down, and set upon the ground, that I and my friends might delight our selves in beholding the care of the old ones in the feeding of their young, for they feede them every one in order, skipping none, neither will they (to the wrong of the rest) give one two parts, although he gape, and be importunate for it; dividing most justly to every one his owne share, according to the exact rule of distribution. And often times for experiment, I would make triall with a strange Sparrow of the same age, laid neere, or put among the rest of the young ones, whether the old ones would feede the stranger, as if it were legitimate. But this as a stranger and a bastard they would suffer to starve, skipping it when it gaped after the meate. And in like manner Lambs and young Kiddes doe in the fields, in the midst of a great flocke, runne every one to his owne damme, who being most certainly able to distinguih between the legitimate and a bastard, will not suffer her selfe to be fed but by her owne young.

Of the industry of Spiders.

The Spider spinnes her web with wonderfull artifice, hanging and fattening it to every tacke or stay that is nigh, drawing of his thread, and running upwards, and downwards, and every way. And although the diligence of the chamber maid beates downe, and marres this pendulous and new begunne worke, yet her feate and her hold, the Spider keepes still, neither is she, or will she desist from the worke she hath begunne, but in a very short time, weaves a great deale more unto the quines of her former worke, than can bee weaved againe with much labour. Soe that from hence all cloth and linnen Weavers, all imbroiderers, and workers with the needle, (you will easilly think) have learnt their Arts, if either you observe the actness of the weaving, the fineneffe of the thread, or the continuation and indiflissible knitting together of the whole web; for being abrupt and troubled with no end of threads at all, it resembles a thinnne membrane, adorned with a kinde of gles, wherewith when the prey is entangled, the Spider runnes presently in, and as it were drawes her nets, and infolds, and takes the captive after the manner of hunting. If this were not daily seene with our eyes, it would be thought fabulous.

Of Bees.

I cannot passe in silence the great induftry of Bees, For having established a kinde of Weale-publique, they make election of a King, who is such a one, as in procer-
Of the Excellency of Man.

Retinue, the rest of his traine following after, neither goes he at any time abroad, but upon urgent affairs which concerns the whole state. His progress is forewarned by the voice and sound of trumpets, and as it were with singing, and they all draw nigh. Every one gets as near to his person as he can, and when he is weary with flying, they all bear him up with their own bodies.

On what place forever he alighteth, there they forthwith pitch their tents. If he chance to die, they do not abroad to feede, but stand all mourning round about the corpse; then carry him out of the hive, and (as it were) follow his heart and bury him; and lastly, having with solemnity performed all the funerall rites and obsequies, they choose themselves another King, for without a King they cannot live. He then taketh care of all things, having his eye every where, whilst that the rest intend the performance of the worke. And supervising all, giveth them encouragement, and chastitheth negligence. For their time of going forth for food, they choose a clear and faire day; for they have a natural facultie of presaging of the weather. They are such observers of justice and equity, that never, either with their wing, or by any other way, doe they molest any creature, neither doe they exercise and prepare their speares against any; but for the safeguard of themselves and their hives.

Of the care of Bees.

They manage and order their affairs in this manner, in the day time they appoint before their gates a station of watchmen, and guarders. In the night, they come together to observe what is the state of the weather, which if they foresee will bee faire, then abroad goe they into the fields, and pastures. Some therefore bring into the hive little facicles of flowers on their thighs, others water in their mouths, and others dewey moisture gathered on their bodies. These are met by others, who receive their burdens, which they dispose in their due and proper places. Those that are sent out into the fields for food, are the youngett and the smalleft. And therefore if the wind chance to rile anything high, they expect until it cease, and that the force and violence thereof be over. But if it continue violent, then doe they ballast themselves with a little stone flying close by the ground, to prevent their being driven too and fro by the force of the wind. They are exceeding diligent in all their businesse, and doe punish the neglect of the hive oftentimes with death. Some of them are the builders, others polisht the building, and the rest bring in their materials.

The building in their arched hives is with wonderfull artifice, being made with two doors, one to come in, and the other to goe out at. They have all things alike, least that the inequalities, either of their food or labour, should give occasion of dissension. Their care is, that their houses may beboth firm and handsonmese. Idle drones, borne for nothing but to eat, and consume the fruits of their labours, they chafe from their hives. Those that chance to lose their wings, are utterly disabled, and in short time their guts come out that way, and they die. They bring to their owners wonderfull increafe of wax and honey.

Aristoxenach, the Philosopher doth boast, that for fiftie eight yeares together, hee bad with great care beene a nourisher of Bees, only that he might the better attaine to the knowledge of their state and condition.

Of Pismires, and Ants.

Neither truly is the industry, diligence, and experience of the Pismire leet to be worthy of admiration, than that of the Bees. Inomuch as that Salomon bids the sluggard to take an example of diligence from the Pismire. Truly if experience did not witness it, it would seeme incredible, that so small a creature should be able to store up fuch abundance of corne, to dispose and manage her affairs in that good order.
Of Living Creatures, and

order that we see the doth. Pliny faith, that they have among them the forme of a well governed and well ordered common weale. For how pretty a sight it is to see them, when they seize upon a graine which they have a minde to carry away, how they set to, and lift it with head and shoulders. And how leaft the corn which they carry to their store-house, should put forth and grow, they bire it at one end. If it be so bigge that they cannot carry it into their little hole, they divide it in the middle. If it be dampish, they lay it out to dry in the Sunne and open air. When the Moone is at the full, they follow their worke in the night, when these do not shine, they take their rest, whereby they shew themselves to have some knowledge of heavenly things Pliny affirmeth that they have their fett Faires and Markets, whither they come in great companies, and where they be to establish leagues of amitie and friendship one with another. And when one makes them well, would hee not thinke that they were in conference one with another, and that they did discourse among themselves of their business? Doe wee not see that the often trampling of their little feet doth wear a path even upon hard flint stones?

From whence wee may note, what in all kinde of things is the effect of affidui-
tie. They say alfo that they performe the rites of buriall one unto another, after the manner of men. What words (hall I use) faith Plutarch to expresse sufficiently the diligence and industry of the Pismires. There is not among all the great things in nature, a sight of greater wonder than these. For in the Pismires are seen the marks of all vertue. Their great meetings argue that they maintaine a kinde of friendship.

Their alacritie in the undergoing of their labours, seems to shew their fortitude and magnanimy; and lastly, they are eminent examples of temperance, providence, and justice. Their mutuall chariteit appeareth in this, that if one of them that is not laden meets another (in one of their narrow paths) that is, hee will give him the way, that hee may the better goe on in his intended journey. They say that the first entrance into their hole, is not straight, but full of many diverticals and crooked paths, which all end, which will bring you to three little cells; in one of which they have their conventicles, in the other they lay up their provisions, and in the third they bury the caraffles of their dead. This doth Plutarch speake concerning Pismires.

Of Silke-Wormes.

With the indufry of these creatures, I shall not unfitly joynie that of the Silke-wormes, of whose paines and care, both in the making of their nests, and the spinning of their thred and bottomes (wherein Kings are so magnificently adorned) Philosophers have written very strange things.

And who can chuse but wonder at these great endowments of skill and knowledge, and that exceeding industry, (the mother of so much wealth) in the little body of so small a creature? The providence therefore of God, doth not onely appear in this, that hee hath adorned each creature with a peculiar and proper endowment, but in this especially, that on the least creatures of all, he hath bestowed the greater portion of skill, industry, and ingenuity to supply their defect of bodily strength.

Of the love of Beasts one towards another and to their young.

Plutarch wrighteth: That all kinde of creatures beare a singula love, and have a kind of care of those that are generated of them, and the indufry of the Partridges, this way is much commended; for during the time that their young ones are weake and unable to flye, they teach them to liue upon their backes, and to hide themselves among the cloddes on the ground, that so being almost of the same colour, they may not be discerned by the Faulconer. But if notwithstanding, they fee any
any body coming, and that hee is neere them, they doe with a hundred dodies and floopings of themselves, as if they were weary with flying, entice him away from their young to follow after them, and when they have their purpose, they then, as if they had recoverd some fresh strength, fly quite away; who can but wonder at this both action and subtilty.

Neither are those things leffe wonderfull that are reported of Hares, for when they would goe to their feate, they fever their young, and commit them to the truf of divers places, it may be two acres asunder one from another, least peradventure a Huntfman, a dogge, or any man should chance to come that way, and they might be in danger to be loft at once. And then after they have traced up and downe, hitther and thither, and every way that the dogges may not trace them, nor the Huntfman pricke them, they take a leape or two, and leape into their formes.

Nor inferior to this is the craft of the Hedghogge, for when the Fox purfeth him, and is now at his heeles, hee rowles himfelfe up in his prickles like a chesnut in the outward shell, fo that every part being rounded and encompassed with these sharpe and dangerous prickes, hee cannot be hurt. And faves himfelfe by this tricke for his young he provides in this manner.

In the time of Vintage he goes to the vines, and there with his feet he strikes off the boughs and the grapes, and then rowling his body makes them fietke upon his prickles, and fo doth as it were take his burthen upon his backe, and then it is ouer; you would thinke that the grapes did move of themselves, the prey hee des"vides betweene himfelfe and his young.

In Florida part of the West Indies they have a beast, which for the variety and deformitie of it I cannot passe over in silence; The natives call it Succarath, the Canibals, Su. It keeues for the most part about the rivers, and the sea-shore, and lives by prey. When hee perceiveth that hee is purfued by the Huntsman, hee gets his young ones upon his backe, and with his tail, which is very long and broad, he covereth them, and so flying, provideth both for his owne, and their safety; neither can he be taken by any other way but by pits, which thofe Savage men ufe to digge in the places neere which he is to runne, into which at unawares hee tumbles headlong. This Picture of him here, I drew out of Thevet's Cosmographie.

Of the affection of Birds, and of Dogges, towards their masters.

The young Storke provides for the old which is disabled by age, and if any one of their equals come to any mishance, that hee is not able to flie, they will give him their affillance, and bear him on their backes and wings, And there-
Of Living Creatures, and

fore this affection and piety towards the old ones, and as it were brotherly love towards their equals, is commended in the Stork.

The Henne in any kind of danger gathers her chickins under her wings, and as it were with that guard, defends them as well as shee can. For their sake shee exposeth her selfe to the crueltie of the fiercest beastes, and will flye in the eyes of a dogge, a Wolfe or a Beare, that by chance offers to meddle with her chickins.

But who is there that doth not admire the delicacy and love of dogges towards their Masters, whereby they recompence them for their keeping? A dogge will never forfake his Master, no, if he be never so hardly ufed. For there is no man can finde a sticke hard enough to drive that dogge cleane away from him which hath once taken a love to him. There is no kinde of creature that doth more certainly and readily remember his master, hee will know the voice of all the household, and of those which frequent the house. There cannot bee a truer keeper (as Cicero himselfe faith) than a Dogge is; I speake not of their faculty of smelling, whereby they follow their Masters by the floote, and finde them, neither doe I speake of those infinite examples of the fidelity of Dogges, which were too long to rehearse.

Pidgeons, as well the Cocke as the Henne, although they are all very venereous, yet they know no adultery, yea and the Henne will bear with the frowardness of the Cock, neither will shee ever leave him, but reconciling him unto her by her officious diligence, bring him to his wonted dalliance and kisses, neither is the love of either of them leffe towards their young.

Turtles never couple twice. The like mutuall bond of love betweene Turtles, for if one of them die, the surviver never solicites Hymen more, neither will he ever chuse other feate than a dry withered bough.

Of the strength, piety, delicacy, clemency, chastity, and gratitude of Elephants.

Among the beastes of the field there is none more vaile, more strong, or more to bee feared, than the Elephant. His strength is sufficiently showne by those towered Castles of armed men, which hee carries, and fiercely rusheth into with the battell. The Romane fouldiers being otherwise of undaunted spirit, yet in that battell which they fought against Antiochus being terrified with the vauntneffe and immannity of those bodies which they had never before seene, presently turned their backes and fled, which notwithstanding, it is a wonderfull thing what stories naturall Philosophers tell of the vertues of the Elephant.

Plinie writeth, that an Elephant commeth very neere to the understanding that men have, and that he hath a rude kinde of knowledge of language, that his facilitie and obsequiousnesse is wonderfull, that his memory in the performance of his wonted duties, is no leffe wonderfull. And for Religion (Plutarch faith) that they pray unto the gods, and sprinkle and purge themselves with salt water, and that with great reverence, they worship the Sunne at his rising, lifting their trunkes up towards heaven, for want of hands. Plinie addeth, that they doe with the like reverence worship the Moone and the Starres. For it is related in the Histories of the Arabians, that at a new Moone the Elephants goe by troopes downe unto the rivers, and there wash themselves with water, and being thus purged, kneele downe and worship the Moone, and then returne to the woodes, the eldest going first, and the other following after according to their age.

Plutarch reporteth, that it happened once, that among the Elephants which were taught at Rome against the Panegyricke shewes, there was one that was something dull, and not so docile as the rest, which made him be despised by his fellows, and often beaten by his master. But that this Elephant, that he might supply by diligence what he wanted in wit, was oftentimes observed in the night, by the light of the Moone, to be practizing and coming what he had learnt of his Master in the day time. For they were wont to bee taught to make letters, and also to present garlands
garlands to the spectators, and other such-like tricks. But they can never bee brought to goe aboard a shippe, to bee carried over the sea into any strange land, unlese their Master give them his word to assure them that they shall
Of Living Creatures, and

returne againe to their owne native soilie. They never hurt any one that doth not first provoke them. They never gender but in private out of sight, an argument of their modestie.

Of the Lamprey.

Let that the heat of affection may seeme to lie quenched under the waters, let us by one example, (it were an infinite thing to speake of all) see in what kinde of mutuall love the creatures of the water come short of those of the land. The Lamprey of all the creatures of this kinde doth worthily beare the praife for its piety towards those of whom it was generated, its affection towards those that are generated of her; for first she breeds egges within her, which in a short time after are spawn. But fhe doth not as soon as her young ones are formed and procreated, bring them straight way forth into the light after the manner of other fishes, that bring forth their young alive, but nourisheth twice within her, as if shee brought forth twice, and had a second broode. These she doth not put forth before they are of some bignesse, then teacheth them to swimme and to play in the water, but suffereth them not to goe farre from her, and anon gapes and receiveth them by her mouth into her bowells againe, suffereth them to inhabit there, and to feede in her belly so long as shee thinkes fit.

That Savage, or brute beafts may be made tame.

There reporteth, that the Emperour of the Turkes bath at Cairo (it was once called Memphis) and at Constantinople, many savage beafts kept for his delight, as Lions, Tigers, Leopards, Antilopes, Camels, Elephants, Porcupines, and many other of this kinde. These they use to leade about the citie to shew. Their masters are girt with a girdle, hung about with little bells, that by noise of these bells the people may be forewarned to keepe themselves from being hurt by these beafts. But in hope of reward and of gifts, they shew them to Embassadors of strangers, before whom they make these beafts doe a thousand very delightfull tricks, and in the interim, they play their country tunes and musick upon their pipes, and other instruments, and make many sports in hope of gaine.

That Fitches also may be tamed.

But it is far more wonderfull, that the creatures of the water should be made tame, and be taught by the Art of man. Among which, the chiefest are held to be the Eele. The same things also are reported of the Lamprey. For wee have it recorded, that Marcus Crassus had a Lamprey in his Firth-poole, that was tame, and so well taught, that he could command her at his pleasure. Therefore as a domesticall and tame beast he gave her a name, by which when he called her, she would come. And when this Lamprey died, hee mourned for her in blakke, as if shee had beene his daughter. Which when his Colleague, Cnaeo Domitian objected to him, by way of reproach, he replying, told him, that he had buried three wives, and had mourned for none of all them three.

That men were taught by beaests to polish, and to whet their weapons, and to lie in ambusc.

Soldiers are careful to keepe their weapons from rust, and therefore they carrie them to the Armorers to be polished. But in this care, many beaests are nothing inferior unto them; for Boares whet their tuskes against they fight. And the Elephant knowing that one of his teeth is doubled with digging at the rooutes of trees to get meate, keepeth the other sharper, and toucheth nothing with it, preferring it for his
his combat with the Rhinoceros his enemy; but the craft of the Rhinoceros is very remarkable, that being in continual enmity with the Elephant, at the time...
The craft of
the Lion, and how he歌切
about to strike with the Ele-
phant.

when he prepares for the battle, he whets his horn against a rocke, as if it were
with a whetstone; nor (if he can chuse) will he strike any other part of the Elephant
but the belly, because he knows that part of the Elephant is so tender, that it may
be easily pierced. This beast is in length equal to the Elephant, but in height he is
inferior unto him, by reason of the shortness of his feet; he is of a paleth yellow
colour, and full of many spots.

The provi-
dence of the
Lion in his
going.

The greatest
are terrified
by the least.

The Lion when he goes, hath his claws always clutched, and as it were put
up in their sheaths, not only because he would leave no marke of his feet,
whereby he may bee traced and so taken, but because by continuall walking, he
should wearre off, and blunt the points of his claws. Bulls when they fight charge
one another with their horns, and like valiant fouldiers, provoke, and animate one
another to the battle.

And this truly hath beene observed to bee by the Anguler providence of na-
ture, that the rouftest creatures are terrified by the least things, and such from
whence there can arise no danger; so they say the Elephant doth flatter at the
grunting of an hogge, and the Lion, at the crowing of a Cock; although it be
reported of the Lion that no feare can make him turne his face. These kind of
feares, terrors, and affrightsments, arising upon light, and most ridiculous oc-
casions, wee finde as well in the ancient as moderne Histories of our times, to
have dispersed and put to flight mightie legions of fouldiers, and most potent
armies.

Of Cocks.

Cocks are kingly birds, and therefore nature hath adorned them with a combe,
and with a princely Diadem, and wherefoever they come, their magnanimity
and courage makes them Kings. They fight with their beakes and their spurres; and with their martiall voice they fright the Lion who is otherwise the King of
beasts.

Of Conies.

Conies have taught us the Art of undermining the earth, whereby the most
loftie Cities, and structures reaching the very skies, are by raking away their
foundation levelled with the ground.

Marcus Varrus writes, that in Spaine there was a towne, and that no meane one,
which standing on a sandy ground was so undermined by a company of Conies,
that all the houses tumbling and falling downe to the ground, the inhabitants were
faine to depart and seek new dwellings.

Of Wolves.

Men have learnt the arts of waging warre from the Woulfes, for they
come out by troupes, and lie in ambush near the towne which they have
appointed, and then one of them runses unto the towne and provokes the dogges.
And making as if hee runne away incites the dogges to follow him, until he
hath gotten them unto the place where their ambush lieth, which on a sudden
appeareth, and rufheth out upon them. And so they kill and eate all, or as many of
the dogges as they are able to catch.
Of the Fox.

In subtlety and craft the Fox exceedeth all other beasts; when in the chase the Doggs are at his heele, he barayes and bepiflTes his taiie, and fwinges it in the face and eyes of the Dogges that follow him, and fo blinding them, in the meane time gets ground of them. To fetch the Hens downe from their pearch he hath this device, hee fhares and fwinges his taiie upwars and downewards, as if hee meant to throw it at them; which they fearing tumble down, & he takes up one of them for his prey. His warinefle when hee pafteth over a River that is frozen is wonderful, for he goes softly to the banck, and lays his eare to listen, if he can heare the noyfe of the water running under the ice. For if he can, back he goes, and will not venter to paffe over. The knowledge of which thing he could never meerey by his subtlety and craft attaine unto, but that of necellity hee muft have fome faculty of reafoning, joined with it, which by discourse and by proving one thing by another arrives at this Conclusion: Whatfoever is liquid and made a noyfe is in motion, whatfoever liquid is in motion is not concrete and frozen, that which is not concrete and frozen is liquid, whatsoever is liquid will not bear a heavier body, whatsoever will not bear a heavier body, cannot with safety be adventured on; And therefore backe againe muft I goe, and not paffe over this River.

Of the Swine.

Wine, if in the woods, they heare any one of the fame Heard with them crying out, they ftraight make a band, and marshalling their forces hate all, as if they had beene warned by the sound of a martiaall trumpet, to the affiftance of their fellowes.

Of the fishe Scarus and Anthia.

Plutarch reports of the Scarus, that when one of them chances to swallow a hooke and be taken, the reft of the fame kind come in to his rescue, and hearing the Line with their teeth, fet him at liberry. But the readiness of the Anthia to the mutual affiftance of one another, is yet more manifeft, for by casting the Line upon which the hooke hanger, on his backe, with the sharpneffe of their fins they cut it asunder, and fo fet free themselves and their captived fellowes.

Of the Pilot Fishe.

There is great kindneffe betweene the Pilot Fishe and the Whale. For although in bulke of body the Whale do fafe exceed him, yet he leads the Whale and goes always before him as his Pilot, to keep him from running himselfe into any strait or muddy place, whence he might not eafily get out. And therefore the Whale always followes him, and very willingly suffereth himselfe to be led by him, it being for his owne good. And in like manner he gets into the Whales mouth, and then lodging himselfe sleepees when he sleepeS, and leaves him not either by day, or night.

Of Cranes.

Cranes when they are to take a long journey into some Countrey croffe the seas, put their company in fo good order, that no Captaine can put his soldierys in better. For before they fir out of any place, they have as it were their trumpets to call them together, and encourage them to fly. They come together and then fly up on high, that they may fee far off,choosing a Captaine whom they are to follow. They have their Serjants to take care of their rankes, and keepe their nightly watches by turns. Plutarch tells us that the Crane, which is appointed to fland at the Sentinell for all the rest, holds a floane in her foote, to the end that if the chance to give
give way to nature and sleepe, she may be waked by the noise of the falling stone.

Of the Geese, the leader lifting up his head, and stretching out his long neck, looks about him farre and wide, and gives warning to the rest, of any danger, that may befall them. The strongest leads the way, that they may the better with the flapping of their wings break the force of the aire, and this they doe by turns, and by throwing the earlie prevaile against the force and opposition of the winds, they dispose their company into a wedge in the forme of the Greek letter Α or a triangle, and being skilfull in the stares they foresee when tempests are comming, and fly downe to the ground to keepe themselves from the injury of the approaching storme.

Of Gese.

The Gese of Sicilie doe with great warineffe take care that by their ceeking and noyfe, they doe not expose themselves to the rapacity of Birds of prey: (for Plutarch faith) that when they are to fly over the hill Taurus, for feare of the Eagles that are there, they hold their flones in their mouthes to keepe themselves from the gaggling, untill that they come unto a place where they may be fecure.

Of Dragons.

Neither are the Dragons leffe crafty, for they overcome those vaft and other wise invincible beasts the Elephants. They lye in ambush and suddainly spring upon the Elephants where they fear no fuch matter, and involve their legs with the twines of their tale, in fuch fort, that they are not able to goe forward; and stop their noftrils with their heads, so that they cannot fetch their breath, they pull out their eyes, and wherefore they find the skin moft tender, they use it for a bait, and sucke the blood untill they make them fall downe. Plutarch faith, that there are Dragons found in Ethiopia of ten Cubits long, but that in India there are Dragons of an hundred foot long, that fly fo high, that they fetch Birds and take their prey even from the midift of the clouds.

Of the Fish called the Fishterman.

His Fish is called the Fishterman, because he hunts and takes other Fishes, which he doth almoft by the fame cunning which the Cuttell fishes for, he hath hanging at his throat a certaine bagge like the Wattells of a Turkycocke. This when hee catcheth he casteth out, and layeth before the little fishes for a baite, and then by little and little drawes it up againe untill he catch for food the little fishes feazing upon it as a prey.

Of the Cuttell Fish.

Onderfull is the craft of the Cuttell Fishes, for they carry a bladder at their nekke full of a blakke juice or juice, which they poure forth as foon as they feel themselves taken, that so they may blinde the eyes of the Fishermen, as Plutarch faith, and as Aristotle witnesseth, they with their long fangs doe not onely hunt and take little Fishes, but oftentimes also Mullets.

Of the Armes or weapons of brute beasts.

Brute beasts are naturally so furnished with armes, that they have no neede to get, make or borrow in any other place.

And some of them neverthelesse are so furnished with such armes that they capti
vate those which hold them prisoners; an example of this is the Terepale, which doth not onely hurt by touch, but also by the net being betweene, he breathes such a quality from him, as stupefies the hands of the Fishermen, so that they are forced to let goe their nets, and to let him goe; moreover if it touch a ship it makes it flay, Thevet writes, that the Persians buy towards Arabia nourished a Fith equall in length and thickneffe
Of the Excellency of Man.

Of the fish Vindex.

He faith moreover, that as he was carryed by force of tempest through the Atlanticke Ocean, he faw this fish having as it were a Saw in his forehead of three foot long, and four fingers broad, armed on each side with sharpe spikes; they call it Vindex in their Country speech.

Of the fish Caffis.

There is another fish to be seen in the Arabian Gulf, which the Arabians call Caffis, its two foot long and as many broad, it hath a skin not much unlike a Dogfish, but armed with spikes, one whereof he carries in his forehead a foot and halfe broad, in sharpenesse and force of cutting not much short of a graver or chisell, with this weapon when he is oppreft with hunger he assails the firft fish he meets, neither doth she give over before she carry her as a prey, whither she please, as Thorens faith he hath seen.

Of the Dexterity of Beasts, and fish of the Dog.

Beasts are apt to learn those things which men desire, whereby they shew themselves not wholly void of reason. For Dogges, Aps and Horfes learn to crepe thorough the luglers hoopes, and rife on their hinder feet as though they would dance. Plutarch tells, that a Lugler had a Dog which would reprefent many things upon the stage befitting the occasion and argument of the play; amongst the rest, he exceeded all admiration in that, that taking a soporificke medicine, he excellently feigned himfelf dead, for firft as taken with a giddineffe in his head he begun to tremble, then presently fell down, and lying on the ground, as it were contra fted his dying members, and laftly as if truly dead he waxe fift; and moreover sufferd himfelfe diversly to be fifted according to divers parts of the Theater, the fable fo requiriug. But when he, by those things that were faid and done, knew it was time to rife, he firft begun to move his legs by litle and litle, as if he had been wakened from a found sleepe; then presently with his head a little lifted up, he looked this way and that way to the great admiration of all the beholders, and finallly rife up and went familiarly and cheerfully to him he should, the which fight the Emperor Poffiauion (who was then prefent in Marcus his Theater) never faw any which more delighted him.

Of the Ape.

A Ape is a ridiculous Creature, and which makes men much fport, in imitating their actions. There hath bene feen an Ape which would pipe and fing, and besides dance and write, and endeavour to perfome many other things proper to men, I remember I faw in the Duke of Somes house a great and curf Ape, who became he much troubled many, had his hands cut off, who fuffering himfelf to be cured, when the wound was cicatrized, he grew more mild and docile. Wherefore cloathed in a greene coat, and girt over his loines with a girdle, he carried hanging therat a cafe of spectacles, a pair of knives & a child's handkercheife. He was committ to the charge of the Mafter Cooke to teach, because he had taken up his lodging in the Chimney corner, he
he was taught many pretty tricks and feats. If at any time he swerved from his doctrine and precepts, in a trice the whip was upon his back & loines, and much was abated of his daily allowance, for as Persius saith, The belly is the master of Arts and sharpener of wit. By these means he profited so, in a short time, that he much exceeded all the Apes of his time in the glory of his wig; & there was none counted more skilful in leaping and dancing to the pipe, running up a pole and nimbly leaping through his Master’s legs. To conclude, he performed all the actions of a strong Ape, and very reverently carried up dishes with the waiters & serving-men, and made clean the dishes and platters by licking, and did much other drudgery, so that he was commonly called Mafter John Do-all. At dinner and supper sitting in a chair he said grace, and cast his eyes upwards towards heaven, and rolled them this way and that way, and smote his breast with the stumpes of his hands with much lamentation, and imitated prayer by the gnashing, or bearing together of his teeth. He would tune up his tail to any that offended him (for his coat scarce covered half his buttocks lest he should have filed it) he made much other pastime, alwayes going upright by reason of the cutting away of his hands, unlesse at any time through wearinesse he were forced to sit on his buttocks.

Of Living Creatures, and

The diligence of Faulconers in training up their Hawken.

The fight of the Herne and Faulcon.

The Camell is a very domestical and gentle beast, and which is easily tamed and taught all kind of obedience and service, although some of them are cruel and troublesome by biting and striking such as they meet, no leffe than vnaimed horses. There is no neede to house them in the night, for they may be left in the plaine fields in the open and free aire, feeding upon the grassle and trees and cropping the tops of the chittles, neither in the morning do they any whit the worser under- good and burdens. They are not put to carry burdens before they be four yeare old. The Arabians gell them young, that they may enjoy their labour the longer, neither being gelt doe they rage for love or defire of venery. At the putting in of the Spring they endure hunger and thirst for eight dayes, they are so dutifull that at the becke of the Turkifh slaves, or but touched on the necke with a tugge, they presently kneel on the ground to take up their burden, neither doe they lift themselves up before that they finde they have a sufficient load laid upon them. Those which have but one bunch on their backe are of Africke; but such as have two bunches are of Asia, or Scythia. Those kinds of Camels that are the bigger are used to carry packes, but the leffer are used to ride upon, as our horses are. They love nothing so well as beanes, and yet they live content with foure xWcupot” bandfulls of beanes for aday. The grcatest wealth of the Arabians consists in Camels, and to they effimate their riches, not by the quantity of silver, or gold, but by the number of Camels. The Turkifh Emperour (Thovet being the reporter) made a Captaine over the beards of his Camels, giving him a great hoarde of African and Christian slaves, that they might be the better looked unto. I have heard it reported ( faith Thovet) by certaine Arabian, African and Jewifh Merchants who were present, at the time when Sultan Selim the first of that name, besieged.
beseiged Caire in Egypt (which in former times was called Memphis) that there
was then in that Emperor's army sixtie thousand Camels, besides a mighty company of Mules.

That Birds have taught us musicall tunes.

The Nightingales are sweet and excellent singers, tuning their notes with infinite quaverings, and diversities of sounds, so precisely and sweetly, that humane industry cannot scarce equal the sweetness thereof, by so many musicall instruments; so that were fay bee fings like a Nightingale, who varies his voice with much varietie. In which thing Birds much excell men, because they have that admiration of sweeting from nature it selfe without any labour of learning, which men can scarce attaine to in any schoole of musicke, by having their ears a thousand times plucke by the hand of a curtef master.

That Beasts know one another's voice.

Beasts know one another by their voice, so that they may frame to talk and laugh together, whilstt flattering with their ears, they plucke in their noizes, with a pleasant accent of their eyes, and as speech is given to men, so Birds have their natural voice which is of the same use to them, as speech is to us. For all birds of the same species, as men of the same country, chant and chirpe to one another, when men understand not the speech of other men, unless of the same nation. Wherefore the Seythian tongue is no more profitable to one living in Egypt, than if he were dumb; nor the Egyptians understand it no more than if they were deaf: Wherefore an Egyptian is dumb and deaf to a Seythian. This thofe which travel well understand how many dangers, how many troubles they undergoe, because they cannot express their minds, and require things necessary for life. Wherefore to the affittance of this unprofitable tongue, we are compelled to call the rest of the members, and to abufe the gestures of the head, eyes, hands, and feate. Truly the condition of brute beasts is not so miserable, seeing that all of the same kinde soever they bee, may answer each other with a knowne voice. Truly if any should hear a Germane, Briton, Spaniard, Englishman, Polonian, and Greeke, speaking amongst themselves in their native tongues, not understanding any of them, he could scarce discerne, and certainly judge, whether hee heard the voice of men or of beasts.

That Birds may counterfei Mens voice.

Inets, Larkes, Pies, Rookes, Dawes, Crowes, Stares, and other such like Birds, speake, sing, whistle, and imitate the voices of men, and other creatures. In this Parrots excel all other, being wondrous skilfull imitators of mens voices, and very merry, but specially when they have drunk a little wine.

Plutarke reports that there was a Barber at Rome, who kept a Pie in his shop, which spake exceeding well, and that of her owne accord, none teaching her; when she first heard men talking together; she imitated the voice or crie of all beasts shee heard, as allo the sound of Drums, and the noise of Pipes, and Trumpets; to conclude, there was nothing which shee did not endeavour to imitate. There have beene Crowes that have spoken and articulately sung songs, and Palfmes, and that of some length. To which purpose the Historie of Macrobius is notable; for hee tells that there was one amongst thofe, who went forth for lacke fake to meete with Anguis Cæfar, returning from the warre against Antonius, who carried a Crow, which hee had taught plainly to pronounce this salutation, Salve Caesar Imperator Augellissime, that is, God save thee, O most sacred Emperor Caesar. Caesar taken with the novelitie of this spectacle, bought this obsequious Bird with a thousand pieces of silver. Pliny and Plutarch have reckoned up amongst prodigies, Oxen and Asses that have spoken, I omit infinite other things recorded by the ancients, Plato, Aristotle Pliny, Plutarch, and other Philosophers of great credit, of the docilitie of beasts, and their admirable
Having briefly described the understanding of brute beasts, it seems not impertinent to set downe some things more worthy of knowledge, happening unto them by reason of Sympathy and Antipathy: that is, mutual agreement and disagreement, which happens not only to them living, but also to them dead, by a certaine secret and hidden propretie, through occasion whereof some fome preternatural
others, and others pro create one another even to death. In testimonie whereof, The Lyon the king of beasts excelling all other in courage and magnanimity, fears the Cocke, for he is not so affaied by his prescence, but also by his crowing being abfent, So an Elephant fears a Hogge; but hee is so affaied of Mice and Ratts, that he will not touch the meat that is given him, if hee smell that it hath beene defiled with fuch creatures. There is deadly hatred betwixt the Elephant and Rhinoceros; yet when the Elephant is furious and angry, bee becomes quieter and calleth the sight of a Ram. A hart is so affaied of a Camel, that he cannot endure his firght. The Doge hates the Wolfe, the Hart flyes the Dogge. The Snake flyes from and fears a naked man, and follows him being clothed. There is deadly hatred between the Aspis and Ichneumon, for he when he hath rawled himselfe in the clay, dries himselfe in the Sunne, and so being covered over (by doing thus divers times) as it were with hishels, or armour, he enters into Combat, stretchting out his talle and presenting his backe, until he get opportunity to choke his adversary, by leaping and falting en her jawes, by which stratageme he alfo kills the Crocodile. The green Lizard is a capital enemy to the Serpent, but most friendly to man, as Erasmus winneth by many histories concerning that matter, in his dialogue of Sympathy and Antipathy. There is a great deal of hatred betweene a man and a Wolfe, which is most manificted by this, that if the Wolves first see a man, his voyce is taken away, and his intended cry hindered. If the Weasel intend to set upon the Aspis, that most venemous Serpent, hearmes her selle by eating Rue, as a most certaine Antidote. The Ape fears the Torpedo, as Erasmus manificht by a pleasant history in the fore mentioned Diologue; where also he prettily thieves the deadly hatred between the Serpente called Areus and the Toad. The like hate is between the Wolve and Crows: so that the Wolve darest not go out, fly abroad, or Steele her food unlesse by night. The water or River fowle is afraid of the Falcon; that if they but hear her bells, they had rather be killed with flaves and fones, than taking wing to fly into the aire. So the Lark yeelds her selle to be taken by a man, leaft the fall into the tallesse of the Hobby. The Catwill, or Merlin is naturally a terrour to Haukes, so that they both run his voyce and prescence.

The Kites are all in perpetuall emmity with the Crowses, wherefore the Crowe alwaies gits away the Kites provisone. All kind of Pullem feare the Foxe. The Chicken feares neither a Horse, nor an Elephant, but scarce hatched, it presently runnaway at the voyce or sight of a Kite, and hides it selfe under the hens wings. The Lambes and Kidlye from the Wolfe when they firft fee him, neither doth death give an end to that hatred, but it supervives their funerall. An Experiment whereof is this: that if one drum be headed with Wolves shinnes and another with Sheepes, and beaten up together, you shall feare hear the sound of the Drum, covered with Sheepes skins: And besides, If you stringe one Harpe with stringes made of Sheepes guts, and another with stringes of Wolves guts, you cannot bring it to paffe, by any Art: to make them agree and goe in one tune. As is reported from the experiments of many men, that if a Wolves head be hung up on high in the place where Sheepe are, that they will not touch the grasse how good and fresh soever it be, nor rest quiet in any place, but tumultuously pume up and dwayne, until all such kinde of terrour be taken away: The hate
betwixt Mice and Weasells appears by this, that if you mixe never so little of the brains of a Weasell in the renet, with which you cruddle your Cheele, the Mice will never gnaw at touch that cheele. The Limnet doth so hate the bird Florus, that both their bloods put into one vellell cannot be mixed together. A Wolves head hung up in a dovehous, drives away Poll-Cats and Weasells. The Panther and Hyana burne with so great hatred, that if both their skins be laid one against the other, the Panthers will shie the haires of the Hyana remaining entire and not moved; which thing, they say, happens to some few examples of many of the Antipathy amongst beasts. But of the Sympathy, and content of beasts amongst themselves, I think needles: to write any thing, being it is sufficiently knowne to all, that one lay affiduates another, and the cruel Bears agree amongst themselves, and beasts of the same species doe wonderfully consent one with another.

That Man excels all beasts.

Now thinke it fit to affay to write of that excellency of man over beasts, which I have so long intended. Neither would I that Epicures and other too much natural and materiale Philosophers, so take those things I have written of the endowments of beasts, as though we should thinke, there were no difference betwixt man and beast. I had no such meaning, no such intention; but onely that man should not become too stately, or too ingrate in lesse acknowledging God to be the Author of so many benefits with which he abounds. For whatsoever we have largely spoken of beasts, yet there is no comparison betwixt beasts and man, for there is too great a difference betwixt them. For mans mind is adorned with religion, justice, prudence, magnificentie, faith, piety, modestly, clemency, fortitude and other virtues as lights, which shine much more bright in man than in beasts. For they are sometimess all in some one man, each whereof are thought great in beasts. For seeing that man is made to the Image of God, it cannot be, how much soever he defile himsef with the pollution of vices, that he can so obscure that inbred, light, that alwayes some boarke of the divine wisedome will be inherent and shine in him. But although by collation to some beasts, hee may become a dejective and weak Creature; yet no fortitude nor strength of beasts can be so great as to equal the fortitude of man. For God hath engraven in man the character of his divine virtue, by the assistance whereof, he might have all beasts under and obedient to him. And though by that we have formerly laid, beasts may freeme to have a certaine advantage, yet that small light is not fit for many and diverse uses, but there is onely given them to much providence, as should be sufficient for them and the preservation of their bodies. But men have reason given them to crop or gather the fruits of crenal life, (as Lucretius saith) whereby it comes to passe, that man onely, amongst so many creatures, hath sense and understanding of divine things. Which Cicero thought to be knowed by that, becaufe man onely had a certaine knowledge of God in his mind. Wherefore he was enriched by God with reason, speech and hands as helps for the performance of all his actions; moreover by his singular and almost divine wis he easily excels all brute beasts. For first, reason being his guide, he invented things necessary for life, firstly imposed names on the things invented befitting their natures, framed letters and Characters, invented all liberall Arts and handy-crafts, and found means to measure the Land and Sea; Hee hath obserued and drawne into an Arte the spares of the Celestiall Globe, the divisions of the Spheres, the changes and orders of days and nights, of times and seasons, the risings and settings of Starres, and their power and effects over these lower bodys. Lastly, he records in writing to perpetuall memory that which concerns his owne nature, or the nature of other things, the precepts and ordinances of life and manners, by which singular gift, we can now confedere with Stoics, Platonists, Aristotelians; and other Philosophers of ancient times, as if they were living.
what benefit man hath by reason of his native nakedness and ignorance.

But as Man's body is by nature naked and unarmed, so is his mind like a smooth table in which nothing is painted, nothing graven; but for help of his nakedness, he hath hands, and for supply of his ignorance, reason and speech. And by these three being as it were the ministers of infinite variety of things, he clothes and defends his body with all things needful, and inriches his mind with the knowledge of arts and sciences. Now if he had certaine weapons borne with him, he should use them only, if he should be borne skilfull in any arte he would meddle with none else. Therefore because it was more expedient to use all sorts of weapons with the hand, and be skilfull in all arts; therefore he must be borne wanting and ignorant of all arts, very wisely called the hand the instrument of instruments: in imitation of which speech, one may rightly affirme, That Reason is the Arte of Arts: for as the hand in worth exceeds the other instruments, because it can make, handle and fit them for use; so reason and speech, though names of no Arte, yet comprehend and encrease all arts. Therefore man seeing he hath his mind instructed by arte, that is, by reason; it is fit he should have his body defended with a weapon or instrument, that is, the hand, which in agility and excellency should exceed all other instruments. For so man hath his hands in stead of all weapons, which he may use in warre and peace as the instruments of all arts; he wants not the bow, the tusk, the horse, the bowe, nor to conclude, any armes of any other beast. For by the benefit of his hands he can handle other armes farre more profitable andsafe, as a Lance, Sword, Speare, halberd, but man also can use at some distance the bow, ling and handgun, when the horse and the hoofe cannot be used but neer at hand. But some may say, A Lion exceeds a man in swiftness of foot; what then? is man therefore inferior to him? no; for by the means of his hands and the guidance of his reason he bridling and riding upon a horse, out runs the Lyon, and being victor follows him to and againe as he himselfe pleases, or vanquished flyes away, and from the horses backe as from a tower wounds the Lyon with what weapons he pleases. To conclude, man is abundantly provided with meanes, to defend himselfe from the violence of all other beasts. For this purpose he doth not only harnesse himselfe as with brafen walles, but also makes ditches and bulwarres; he makes by the miniftry of his hands all kind of weapons, weaves himselfe garments, castes into the water and drawes forth nets to catch fish; and to conclude, he performs all things to his owne contentment, and having that priviledge granted him by God, he rules over all the earth; all things which lie hid in the bowells of the earth, which grow, or crepe upon the earth, which swim in the sea, and fly through the aire, or are any where shut up in the compasse of the skie, are in mans dominion.

Gods Deity and providence hath principally shewed it self in the creation of man; neither his so admired light hath fo thone in the production of other creatures, seeing that God would have them to live and have their being, onely for mans sake, that they might serve him. Therefore man is, if we diligently consider all his endem- ments, a certaine patterne and rule of the divine majesty: if I may so say, a little world. For being made to Gods image, he is as it were his coin, exceeding the capacity of all humane understanding. Which seemed a just reason to the ancient Philosophers, that he should be called Microcosmus, or a little world, because the particles of all things contained in the compasse of heaven and earth, are contained in his minde and body; that in the mean time I may in silence passe over his soule more great and noble than the whole world.
Of Living Creatures, and of the Crocodile.

Why nature hath not given man the facultie of persaying.

This seems the reason, that men by the intifnit of nature doe not foresee the future season and dispositions of the heaven and aire, because, seeing they have received certaine sparks of prudence from God, by whose care and guidance they are led to the knowledge of things by no receptfull but certaine judgment, being not obnoxious to the conditions and changes of times and season as beasts are. Wherefore knowing all these airy changes to be placed under them, that is to say their minds, according as occasion serves, and their minds desire, they give themselves to mirth when the Aire is wet, thorny and darke and on the contrary in a cleare and faire season to a sincere and grave meditation of things sublimes & full of doubt. But beasts accommodating themselves to that disposition of the aire which is present and at hand, are lively, or deade from any judgment at all, but according to the temper and complexion of their bodies following the inclinations of the aire, and of the humors one while diffus’d, another while contracted. Neither ought we to blame man, because he can imitate the voice of beasts, but rather much commend him, that he can infinitely wreath and vary one thing, that is his voice; for men can bark like Foxes and dogges, grunt like hogs, whine and grinde their teeth like boares, roar like Lyons, bellow like Bulls, neigh like horses, kneace their teeth like Apes, howe like Wolves, bray like Asses, bleate like Goats and Sheepes; mourne like Beares, Pigeons and Turtles; Keeke and gaggle like geese; hisse like Serpents; cry like Storkes, caw like Crows, and crow like a Cocke, clacke like Hennes; chatter as Swallows and Pyes; sing like Nightingales; croake like Frogs; imitate the singing of Wafpes and Humming of Bees; Mew like Cats. The singing of Birds scarce seems to merit the name of Musick, compared to the harmony of men fitted and tuned with infinite variety of voices. For with this they possesse the cares of Kings and Princes; provoke and temper their wrath, and carry mens minds beyond themselves, and transforme them into what habits they please. But if those cruell beasts have any humannie, they owe it all to man. For he tames Lyons, Elephants, Beares, Tigers, Leapards, Panthers and such other like.

A tame Crocodile.

Laturch reports of the Crocodile (whose figure is here delineated) that being tamed, and taught by man, hee doth not only hear men voyce, and answer to his call, but suffereth himselfe to be handled, and opening his throat, lets his teeth be scratched and wiped with a towell. How small a part of Physick is that, which beasts are taught by nature? Certainly nothing in comparision of man, who by the study and praxis of a few yeares can learn at his fingers ends all the parts of Physick; and praxis them not only for his owne, but also for the common good of all men. But why cannot beasts attain unto the knowledge of Physick so well as men? I think, because so great an Arte as Physick is, cannot be attained unto by the dull capacities of Beasts.

But for that I have written of the Religion of Elephants, if I must speake according to the truth of the matter, wee cannot say they worship God, or have any sense of the divine Majesty. For how can they have any knowledge of sublime things or of God, seeing they wholly following their food, know not how to meditate on celestiall things? Now for that they behold and turn themselves to the Moone by night, and to the Sunne in the morning, they doe not that as worshipping, or for that they conceive any excellency or divinitie in the Sunne; but because nature so requiring and leading them, they feele their bodies to rejoice in that light, and their entrails and humors to move and finte them.
them to it. Therefore when we attributed religion to Elephants, we said it rather popularly, than truly, and more that we might exhorts men to the worship of God.

Than that we thought Elephants had any knowledge of divine worship implanted in their minds.

That man may attain unto the knowledge of all tongues.

The docility of man's wit is so great, and the facility of the body obeying the divine gift of wit such, that he is not only able to learn and speak.
the tongues of diverse nations differing in so many peculiar languages; and not only to imitate and counterfeit the voices of all beasts though so much different from man, which many flattering and jugling companions, followers of other men's tables, will do; but also may be able to know and understand both what they pretend and signify. In confirmation of which thing they cite the Philosopher Apollonius most famous in this kind of study and knowledge. He walking on a time amongst a company of his friends thorough the field, and seeing a Sparrow come flying and chirping much to diverse other Sparrows sitting upon a tree, is reported, to have said to those which were with him: That bird, which came flying hither, told the other in her language; that an Ass laid with corn was fallen down at the City gate, and had fized the wheat upon the ground. Wherefore Apollonius and all his friends which were with him went thither to see whether it were so; and found that it was so, as he had told them, and observed that the Sparrows moved thereto by the coming of the other, were eating up the graines of Corn laid on the ground.

But for Crowes and Pyses artificially taught to counterfeit mens voyces, it is too small a thing; that for that cause they should contend with men. For they have quickly babbled all they have learnt with longer cost and labour, tedious ingeniously singing still the same song, and whatsoever they prate they doe it without sense, understanding or any reason for what they say. But man alwayes contemplating somewhat more high, still thinkes of greater things than these present, and never rests. But burning with an infinite and endlefe desire of knowledge, he doth not onely cover to know these things which appertaine to food and clothing, but by casting up his eyes towards heaven, and by the light of his minde, he learnes and understandeth things divine. Which is so certaine an argument of the celestiall original of our soule, that hee which considereth those things can no wayes doubt, but that we have our minds feaoned, by the univerell divine understanding. But now it is time for us to set upon the description of the body, the habitation and fit instrument of all the functions of that divine minde.

The end of the second book.

Following custom and the manner of such as before me have written of Anatomy, will first, that I may make the minds of the Readers more attentive and desirous of these studies, declare how necessary it is, and also how profitable; and then shew the order to be observed in it, before I come to the particular description of mans body.

Furthermore, how Anatomy may be defined, and the manner of the definition of the parts. For the first, the knowledge of Anatomy seems in my judgement very necessary to those that desire to excell, or attaine to perfection of Physicke; that is, whereby they may be able to preserve the present health of the body, and the parts thereof, and drive away diseases. For how can either Physicke or Chirurgeon preserve health by the use of the like things, which consists in the temperament, constitution, and natural union of the parts; or expel the disease which hurts those three, by the like use of their contraries, unless he shall know the nature and composition of the body, and understand as by the rule of this knowledge, how much it swerves from the nature thereof? Wherefore it is excellently said of Hippocrates, that the Physicke called to cure the sick Patient, ought diligently to consider, whether those things that are in him, or appear to be in him, be like or unlike, that is, whether the Patient be like himselfe and his owne nature in all his parts and functions, temperature, compositure and union; that hee may preserve those which are yet contained in the bounds of nature, and restore those that are gone astray. Which thing Galen hath also confirmed, specially where he saith; he must well know the nature and structure or compositure of the bones, who taketh upon him to restore them broken or dislocated to themselves and their proper seats or places. Moreover seeing that healing doth not only consist in the knowledge of the disease, but as well in prescribing fit medicines and like application of them to the body and the parts thereof, all which by their natural dissimilitude, doe require unlike medicines, according to Galen's opinion: I prethe tell mee, who can performe this, which is ignorant of the description of the whole and the parts thereof, taught by Anatomy? We may say the like of the Apothecarie, who ignorant of the situation of the parts in the body, cannot apply Empliaisters, Ointments, Cataplasmes, Fomentations, Epithemes, baggesto the fit places, as to the futures of the skull, to the Heart, Liver,
Stomacke, Spleene, Reines, Wombe or Bladder. For example, let us imagine the Liver to be troubled with a hot distemperature, but on the contrary the stomacke with a cold (which commonly happens, seeing the Liver hotter than it ought to be, finds up many vapours to the head; from whence cold humors fall into the stomacke.)

If hot things to be applied to the stomacke by the Physitions prescription, be by the Apothecaries making no difference, applied both to the stomacke and neighbouring Liver (which may chance if he be ignorant that the stomacke bends somewhat to the left side under the breast-blade; but the liver so takes up the right side of the body that with a great part thereof, it covers almost all the stomacke) will not he much offend by increasine the hot distemper of the liver, and not thereby giving cause, or help to the disease? Shall not by this his ignorance, the Patient be frustrated of his desire, and the medicine of its effect? By these examples I think it most manifest, that the Anatomical knowledge of the parts of the body is exceeding necessary to all Physitions, Chirurgions, and Apothecaries, who will prate Physick with any prattle to the glory of God, and the benefit and good of man, for whose sake we have wrote these things, and illustrated them by figures, subjecting the parts to the eye, and finely put them in their proper places.

There is a threefold method:

1. The Authors intent.
2. The knowledge of Anatomy, it commodious four manner of ways.
3. But Anatomy is commodious four manner of ways: the first, is, because this
   we are led to the knowledge of God the Creator, as by the effect to the cause, for we
   read in Saint Paul, The invisible things of God are made manifest by the visible.
   The second is, That by means hereof we know the nature of mans body, and
   the parts thereof, whereby wee may more easily and certainly judge and determine
   of sicknesse and health. The third is, that by the knowledge of the body and its parts,
   and together therewith its affections and diseases, we may prophesie what is to
   come, and foretell the events of diseases. Lastly, the fourth is, that considering the
   nature of the diseased part, we may fitly prescribe medicines, and apply them in their
   due places.

Now we must declare in what order Anatomy may be fitly delivered; but first we
must observe there is a threefold Methode; The first is called of Composition, being
very commodious for the teaching of Arts, which Aristotle hath used in his
Workes of Logick, and natural Philoaphy, the order and beginning taken from
the least and most simple to the more compound. The second of Division, fit for the
inventing or finding out of sciences. Galen hath followed this order in his Bookes of
Anatomical Administrations, and of the use of the parts. The third of Definition,
which setteth the nature and essence of things, as appeares by Galen in his Booke
De Arte pars. And because this order doth also prosecute the divisions, therefore
it is commonly accustomed to be comprehended in the compass of the second.
Therefore I will follow this in my Anatomical Treatise, deviding mans body into
its parts, which I will not only subject to the eye in the way of knowing them, but
also to the mind in the faithfull understanding them. For I will adjoyne those things
that are delivered of them by Galen in his Booke of Anatomy, Administrations, with
those which he hath taught in his Bookes of the use of the parts. For there hee fitly
laies the parts of mans body before our eyes, to the sense. But here he teaches to
know them, not to see them; for here shewes why, and for what use they are made.
Having briefly handled these things, wee must declare what Anatomy is; that as
Cicero laid out of Plato's Phaedo, it may be understood of what we dispute. And be-
cause we attain that by definition (which is a short and plain speech, confiting of
the Genus and difference of the things defined, being the essentiel parts, by which the
nature and essence of the thing, is briefly and plainly explained) first we define An-
atomy, then presently explain the particular parts of the definition.

Wherefore Anatomy, (if you have regard to the name) is a perfect and absolute
devison, or artificiall resolution of mans body into its parts, as well general as par-
ticular, as well compound as simple. Neither may this definition seeme illegitimate,
specially amongst Physitions and Chirurgians. For seeing they are Artizans humiliated
to the sense, they may use the proper and common qualities of things for their es-
sentiel differences and forms. As on the contrary, Philosophers may refuse all def-
nitions as spurious, which confit not of the next Genus and the most proper, and ef-
sentiel
sential differences. But seeing that through the imbecility of our understanding, such differences are unknown to us, in their places we are compelled in defining things, to draw into one many common and proper accidents; so that the definition which we intend, which for that cause we may more truly call a description, because for the matter and essentiall forms of the thing, it presents us only the matter adorned with certain accidents. This appears by the former definition, in which Definition and Resolution stand for the Genus, because they may be parted into divers others, as it were into parts. That which is added over and besides, stands in place of the difference, because they separate and make different the thing it itself from all other rash and unessentiall divisions. We must know an artificial division, is no other than a separation of one part from another, without the hurt of the other, observing the proper circumscription of each of them; which if they perish or be defaced by the division, it cannot be said to be artificial; and thus much may suffice for the parts of the definition in general.

For as much as belongs to the explication of each word, we said of Mans body, because, as much as lies in us, we take care of, preserve the health, and depel the diseafes thereof, by which it appearc that mans body is the subject of Physicke, not as it is mans, or consists of matter and forme, but as it is partaker of health and sicknede.

Wee understand nothing else by a part, according to Galen, than some certaine Gainb. a body, which is not wholly disjouyned, nor wholly united with other bodies of their kinds; but so that, according to his opinion, the whole being composed therewith, which in some for it is united, and in some kindes separated from the forme, by their proper circumscription. Furthermore by the parts in generall, I understand the head, breast, belly, and their adjuncts. By the particular parts of those, I understand, the simple parts, as the similar, which are nine in number, as a griflle, bone, ligament, membrane, tendon, nerve, vein, arterie, muculose flesh; some addie fibers, fat, marrow, the nails and haires; other omit them as excrements; but wee must note that such parts are called simple, rather in the judgement of the fense, than of reason. For if any will more diligently consider the nature, they shall finde none absolutely simple, because they are nourisled, have life and fense, either manifeft or obfure, which happens not without a nerve, vein, and arterie.

But if any shall object, that no nerve is communicated to any bone, except the teeth; I will answer, that neverthelesse the bones have sense by the nervous fibers, which are communicated to them by the Pernioum, as by whose mediation the Pernioum is connected to the bones, as we fee it happens to these membranes, which involve the bowels. And the bones, by this benefit of the animall sense expell the noxius and excrementious humors from themselves into the spaces be tween them and the Periostium, which as indued with a more quicke sense, admonisheth us, according to its office and dutie, of that danger which is ready to seize upon the bones, and iffe it be prevented. Wherefore wee will conclude according to the truth of the thing, that there is no part in our body simple, but only some are so named and thought, according to the fense; although also otherwise some may be truly named simple, as according to the peculiar and proper flesh of each of their kinds. Those parts are called compound which are made or composd by the mediation, or immediately of those simple, which they term otherwise organisall or instrumenall; as an armes, legges, hand, foot, and others of this kinde.

And here wee must observe, that the parts are called simple and similar, because they cannot be devided into any particles but of the same kind; but the compound are called dissimilar from the quite contrary reason. They are called instrumentall and organisall, because they can performe such actions of themselves, as serves for the preservation of themselves and the whole; as the eye of it felle, without the assistance of any other part, feet, and by this facility defends the whole body, as also it felle. Wherefore it is called an instrument or organ, but nor any particle of it, as the coats, which cannot of it felle performe that act. Whereby wee must unders tand, that in each instrumentall part we must diligently observe foure proper parts. One by which the action is properly performed, as the Cristalline humour in the
the Anatomie

eye, another without which the action cannot be performed, as the nerve & the other humors of the eye. The third, whereby the action is better and more conveniently done, as the tunics and muscles. The fourth, by which the action is preferred, as the eye-lids and circle of the eye. The same may be said of the hand, which is the proper instrument of holding, for it performs this action: fifth by the muscles, as the principal part; Secondly, by the ligament, as a part without which such action cannot be performed. Thirdly by the bones and nails; because by the benefit of these parts, the action is more happily performed. Fourthly, by the veins, arteries and skin, for that by their benefite and use, the red, and so consequently the action itself is preferred.

But we must consider, that the instrumental parts have a fourfold order. They as said to be of the first order, which are first and immediately composed of the simple, are only the authors of some one action, of which kinds are the muscles and vessels. They are of the second which consist of these first simple, and others besides, as the fingers. They are counted of the third, as the muscles and vessels are simple parts, we refer you to the sense and sight, and to the understanding, comparatively to the parts which are more compound; but if any consider their existence and constitution, they shall understand they are truly compound, as we said before. Now it remains, that we consider, that in each part, whether simple or compound, nine things are to be considered, as subsistence, quantity or magnitude, figure, composition, number, connexion, (by which name, we also understand the original and infusion) temperature, action, and use; that by the consideration of these things, every one may exercise the art of Physicke, in preserving health, curing diseases, or foreseeing their events and ends.

But also we must note, that of the organicall parts, there be three, by whose power the body is governed, which for that cause they call regent and principal, because they govern all the rest; they are the liver, heart, and braine. But they are called principal, not only because they are necessary for life (for the stomacke, winde-pipe, lungs, reines, bladder, and such like parts perhaps are equally as necessary for life,) but because from each of these three, some force, power, and facultie, or also matter necessary for the whole body, flow over all the body, when no such thing proceeds from the rest of the parts. For from the liver a matter fit for nourishment, is distributed by the veins through all the body; from the heart the vital force diffused by the arteries, imparts life to the whole body; from the braine by the nerves a power or facultie is carried through all the parts of the body, which gives them sense and motion.

Galien would have the Testicles to be of this kind, not for the necessitie of the individual, or peculiar body, but for the preservation of the Species or kind. And moreover in his book de Semine comparing the Testicles with the heart, he makes them the more noble by this reason, that by how much it is better to live and happily, than mildly and absolutely to live, by so much the testicles are more excellent than the heart, because with them we may live well and pleasantly, but with this mildly live, as we see by the example of Eumuches, and such as are gelt, by which the Testicles seeme rightly to be accounted amongst the principal parts; for nature seeing it defined, that this its workes should be immortal, for the attaining of that immortality which it intends, frames those parts, like as prudent founders of a Citty, who do not only procure to furnish their cite with many inhabitants, so long as they are in building it, but also that it may remaine in the same state and condition for ever, or at least for many ages. And yet notwithstanding of so many citi built in the first memory of man, there remains none, whole fame and fame, together with the builders name is not decayed and perished. But this humane workes of nature, stand yet secure for this many thousand of yeares, and shall endure hereafter, because it hath found a way, by which every one may substitute another in his place before he depart. Hence it is that all creatures have members fit for generation, and pleasures inferred
in those members, by which they might be inticed to mutual embraces and copulations. But the mind, which hath dominion over those members, hath an incredible desire of propagating the issue, by which also brute beasts incited, desire to propagate their kinds for ever. For seeing that nature understands all these her works considered particularly by themselves, are frail and mortal, it hath done what it could to recom pense that fatal necessity of dying, by a perpetual succession of individuals.

Hitherto we may seeme to have abundantly shewed what necessity of knowledge in Anatomy belongs to all Artizans in Physicke, and also what order is to be observed in the same. And lastly, how it is defined, and the reason of the parts of the definition. Wherefore it remains that wee proeecute what wee have taken in hand; which is, that wee shew and declare how to know all and every the parts of mans body, how many, and what they be, and to understand wherefore they be. For although the true knowledge of Anatomy may be perfected by the sight of the eye, and touching and handling each part with the hand, yet nevertheless the labour of describing Anatomy is not unprofitable. For by reading, such as have often exercised themselves in the dissecting of mens bodies may refresh and help their memories, and such as have not, may make plain and easy the way to the understanding of dissections.

**CHAP. I.**

The Division or partition of Mans body.

By reason the partition of mans body can hardly be understood, if the distinction of the proper faculties of the soule be not understood, for whose cause the body enjoyes that forme (which wee fee,) and deviation into divers instruments. Therefore I thought good in few words to touch that description of the faculties of the soule, for the better understanding of the partition of the body which we intend. Wherefore the soule, the perfection of the body, and beginning of all his functions, is commonly distinguished and that in the first and general division, into three faculties, which are the Animal, vital, and natural. But the Animal is divided into the principal, sensitive, and motive; againe, the principal is distinguished into the imaginative, reasonable, and membranous. And the sensitive into Seeing, Hearing, Smelling, Tasting, and Touching. But the motive into productive and apprehensive. And the vital is divided into the dilative, and contractile faculties of the heart and arteries, which we know or understand by the pulsatile faculties. But the natural is parted into the nutritive, active, and generative faculties, which three performe their parts by the helpe and ministration of five other faculties, which are, the Attractive, Retentive, Conducive, Assimilative, and Expulsive.

After the selfe-same manner the organ or instrument of the soule, to wit, Mans body, at the first division is distinguished into three parts, which from their office they call Animal, vital, and natural. These againe, according to the subdivision of the subalternall faculties, are divided particularly into other parts; so that any one may know the organ of each facultie, by the property of the function. For while other Anatomists divide mans body into four universall and chief partes, they distinguish from the three first, those which they call the Extremities; neither doe they teach to what straunce of the three prime partes each extremity should be reduced. From whence many difficulties happen in reading the writings of Anatomists; for thumming whereof, we will proeecute, as wee have said, that distinction of mans body, which we have touched before.

Wherefore, as wee said before, mans body is divided into three principal and general partes, Animal, Vital, and Natural. By the Animal part, wee understand not onely the parts pertaining to the head, which are bounded with the crowne of the head, the coler bones, and the first Periebra of the breast, but also the extremities.
ties, because they are organs and instruments of the motive faculties; Hippocrates
feemes to have confirmed the same, where hee writeth: Tho’se who have a thick and
great head, have also great bones, nerves, and limbs. And in another place hee faith,
tho’se who have great heads, and when they sleep, they have a long necke, such have all
their parts large, but chiefly the animal. Not for that Hippocrates would therefore have
the head the beginning and cause of the magnitude and greatness of the bones, and
the rest of the members; but that he might shew the equality, and privy care of
government of nature, being most just and exact in the fabricke of mans body, as if
the head well framed the head, it should not be unlike, that thee idly or carelessly
neglectted the other parts which are lesse seen. I thought good to dilate this passage,
least any might abuse that authoritie of Hippocrates: and gather from thence, that not
only the bones, membranes, ligaments, gristles, and all the other animal parts;
but also the veins and arteries depend on the head as the original. But if any ob-
serve this our distinction of the parts of the body, he will understand we have a
farre other meaning.

By the vittall parts, we understand only the heart, arteries, lungs, wind-pipe,
and other particles annexed to these. But by the naturall, wee would have all those parts
understood which are contained in the whole compasse of the Peritonneum or Rim of
the body, and the processes of the Eystrohides, the second conte of the Testicles. For
as much as belongs to all the other parts, which we call containing, they must bege-
need in the number of the animals, which notwithstanding, we must thus device in
to principall, sensitive, and motive; and againe, each of these in the manner follow-
ing. For first the principall is devided into the imaginative, which is the first and up-
per part of the braine, with its two ventercles and other annexed particles; into the
reasoning, which is a part of the braine, lying under the former, and it were the
topper thereof, with its third ventricile. Into the membranous, which is the cerebellum
or afterbraine, with an ventercle hollowed in its substance. Secondly, the sensitive
is parted into the vittive, which is in the eyes; the auditory, in the ears; the hatching,
in the nose; the tasting, in the tongue and palate; the tactiv, or touching which is in the
body, but most exquisite in the skinne which invests the palates of the hands. Thirdly,
the motive, is devided into the progressive, which intimates the legges, and the com-
prehensive, which intimates the hands. Lastly, into simply motive, which are unre
parts, called bellies, for the greatest parts terminating and containing; for the hear,
the instrument of the faculty of the heart, and dilatation of the arteries, are the direc-
ond freight fibers, but of the contrivant the transverse; but the three kinds of fibers
together, of the pulsfick; or, if you please, you may divide them into parts serving
for respiration, as are the lungs, and wind-panes, and parts serving for vittall moist,
as are the heart and arteries, furnished with these fibers, which we formerly mentioned.
The deviation of the natural parts remains; which is into the nourishing, nutritive and
generative, which againe are distributed into attracting, universal; and particular,
retentive, conceiving, distributive, assimilative, & expulsive. The attractive is the sub-
lipe and upper orifice of the ventercle; the retentive, as the Pylorus or lower passage
of the stomacke; the conceiving, as the body of the ventercle; or, as I said before, the
distributive, as the three small galls the expulsive, as the three great guts we may say
the fame of the liver, for that draws by the murrinke & gate veins, retains by the
narrow orifices of the veins dispersed through the substance thereof; it con-
coects by its proper flebe; distributes by the hollow veins, expels by the spleene, blad-
der of the gall and kidneeks. We also see the parts in the ventercles devided into as many
functions; for they draw by the preparing ventercles, retain by the various crooked
passages; in the same ventercles they concoct the feces by the power of their proper sub-
stance and facultie; they distribute by the exclavataries, at the glandles called Pro-
fisons, and the horse of the wombe, suspending the place of proflates, Lastly, they
expell or cast forth by the proflates, horse, and adjoining parts. For as much as be-
longs to the particular attraction, retention, conception, distribution, assimilation of
each part, that depends of the particular temper, and as they terminate on the properties
each similar and simple part. Neither doe the particular actions differ from the
universal, but that the general are performed by the assymetie of the three parts
of Mans body.

of fibers, but the speciall by the severall occulte propertie of their flesh, arising from their temperature, we may call a specielleke propertie. Now in the compo-

tion of mans body, nature principally aimes at three things. The first is, to create parts necessary for life, as are the heart, braine, and liver. The second, to bring forth other for the better and more commodious living, as the eyes, nose, ears, arms and hands. The third is, for the propagation and renewing the species or kind, as the privie parts, testicles, and wombe. And this is my opinion, of the true di-
finition of mans body, furnished with so many parts, for the performance of so many faculties, which you, if you please, may approve of and follow. If not, you may follow the common and vulgar, which is, into three bellies, or capacities, the upper, middle, lower(that is, the head, breast and lower belly) and the limbs or joints. In which by the head we do not understand all the Animall parts, but onely those which are from the crowne of the head to the first vertebra of the necke, or to the first of the backe, if according to the opinion of Galen Lib. de offito, where he makes mention of Enerothois and Arithrois, we reckon the necke amongst the parts of the head. By the breast, whatsoever is contained from the collar bones to the ends of the true and bastard, or short ribbs, and the midriffe. By the lower belly, the rest of the trunke of the body, from the ends of the ribbs to the share-bones; by the limbs, we understand the arms and legges. We will follow this division in this our An-
atomical discourse, becaufe we cannot follow the former in differing the parts of mans body, by reason the animall parts are mutually mixed with the vitall and naturall, and frift of the lower belly.

Nature would not have this lower belly bony, becaufe the ventricle might bee more easily dilated by meates and drinke, children might grow the better, and the body be more flexible. It is convenient we beginne our Anatomicall administration from this, becaufe it is more subject to putrification than the rest, both by reason of its cold and moist temperature, as also by reason of the feculent excrements therein contained. Yet before we goe any further, if the Anatomicall administration must be performed in publike, the body being first handfomely placed, and all the instrumen-
ts necessary for dissection made ready, the belly must be devided into its parts, of which some contain, and other some are contained.

They are called containing, which make all that capacity which is terminated by the Peritoneum or Rim of the belly. The upper part whereof is bounded by Galen within the compasse of the direct muscles, and by a general name is called Epigastri-
am, or the upper part of the lower belly. That againe is devided into three parts, that is, into that which is above the navell, and which carries the name of the whole, into that which is about the navell, and is called the umbilical or middle part; and lastly, into that which is below the navell, called the Hypogastrium, or the lower part of the lower belly.

In every of which three parts there be two laterall, or side parts to be considered, as in the Epigastrium, the right and left Hypochondria, which are bounded above and below, in the compasse of the midriffe, and the short ribbs. In the vmbilical the two Lumbares (some call them Latera fides) which on both sides from the lowest parts of the breast, are drawn to the flanke, or hanch-bones in the Hypogastrium, the two Ile, or flanke, which the Greekes call עים signifie all the emptie parts, from the ends of the ribbs, even to the hanch-bones, whereupon they also call them גים as if you should say, empty spaces, becaufe they are not encompasied with any bone. Yet I thought good that this doctrine of deviding the belly should be more dif-

inct, to call the parts which are on each side the navell Lumbares, and doche on the lower part of the lower belly Ile, flanke. But we must obverse that the Ancients have been fo diligent in deciphering the containing parts, that as exactly as might be, they deigned the bowells contained in the belly, which being diverse lie in sundrie places; for the greater portion of the liver lies under the right Hypochondrium; under the left almost all the ventricle; and spleene. Under the Epigastrium the loweror-

cifice of the ventricle, and the smaller portion of the liver, In the Lumbares, or fides, in the right and upper part the right kidney, in the lower part towards the flanke, the blind
blinde gut; in the middle part thereof the collique and emptie guts. In the upper part of the left side lies the left kidney, in the middle part, the rest of the emptie and collique guts. Under the region of the navell, lies the girdle or upper part of the call, the collique gut thrusting it selfe also through that way. Under the left or flankes, the right and left, lie the greater part of the gut lioon, the horses of the wombe in women bigge with child, and the spermaticke vessels in men and women. Under the Hypogasteum in the lower part lies the right, or straight gut, the bladder, wombe, and the rest of the call.

If we know, and weell understand these things, wee shall more easily discern the parts affected by the place of the paine, and cure it by application of remedies, without the hurting of any part. The distinction of such places, and the parts in these places, as seeming most profitable, I have thought good to illustrate by the placing these two following figures, in which thou hast deciphered, not only the foresaid parts, containing, and contained, but also of the whole body, and many other things which may seeme to conduome to the knowledge of the mentioned parts. The figures are these.

The Figure showing the foreparts of the body.

A. The hairy Scalp, calvus pubis.
Z. The region of the navell, called Hypogasteum.
C. The umbilical region, the middle part of the lower belly.
R. The navell, or umbilicus.
B. The root of the belly, or radix.
L. The side, or Lumbare.
M. The outside of the lower part of the arm, called cubitum externum.
X. The top of the foote, or tendo pedis.
Y. The inner Ankes, or saeclum pedis.
Z. The outward ankles, or extensors of the feet, the place under the inward ankle, where the vein called Sapheues is opened.

The

XX. the upper part of the foot, called Tarsus.
VV. the inward part of the foot.
The Figure of the backe parts of a man.

A. The fortop of the head, Francium. 
B. The top or crowne of the head vertex. 
C. The hinder part of the head, scutum. 

From D. to L. the face, Pascis, ororum.

E. The eybrowes, supercilia, supercilii.
F. The upper eye-lid, oculus, orris.

* The tip of the nose cald glabulis nasi.
H. The backe part of the needle, calcaris, acutus.

and the base or nape of the necke. There is a hollowmelke at the top of this cervix, where were applye Seams.
I. The inner or shoulder part, called anguli.

J. The shoulder blades, scapulae, scapulæ.
K. The elbow, cunien.
L. The armes hole, oris, orræ.
M. The sides, Lombrici, or the region of the kidneys.
N. The loines, Lumbi, or the region of the kidneys.
O. The place of the hips, coxæ, where we applye remedies for the Sciatica.

P. The place of the holy-bone, or Os sacrum where we applye remedies in the diseases of the right or.
Q. The place of the Rumpus or Coccyx.
R. The buttocks, Glutei, glutaei.
S. The batcke parts of the thighs, popeline.
T. The hams, Popeln, popine.
V. The calf of the leg, fara.
X. The foot or parvis, jarni.
Y. The inter-anele, os triumphale externum.
Z. The backe parts of the thigh, femora.

aa. The outhde of the fame, Cubiti externi.
bb. The forefinger, index, index.
cc. The middle finger, medii, medius.
dd. The little finger, minimi, minimus.

The containing parts of the Epigastrium, and the preparation in Anatomical administration.

The containing parts of the Epigastrium are the Epidermis or thine outward skine, the true skine, the fishe or fatty Pannicule, the eight muscles of the Epigastrium with their common, the Rim of the belly, the five first vertebra’s of the loines, all the holy-bone, the hanch-bone, share-bone, the white line, and middriff. Of these parts some are common to the whole body, as the three first, the other proper to the parts contained in the Epigastrium taken in general. Which that you may see in their order, first you must cut round about the navel, to the upper superficies of the muscles, that so we may keep it, till such time, occasion shall offer it, to shew the umbilical vessels lying in that place, which are one静脉, two arteries, & the urachus (if it be there). Which being done, you must draw a straight line from the cheif, over the breast-blade, even to the share-bone, which may divide the common containing parts, even to the white line.
Then first it will be convenient to draw two other lines across, or over whart, of the like depth on each hand, from the circumference of the navell, even to the sides, that so on each part wee may draw the skinside more commodiously from the parts lying under it; the fight of which otherwise it would hinder. These things being done, the skinside mee bee devised from the parts lying under it from the designed circumference left about the navell. Wee must teach how the skin is twofold, the true and false, and render a reason of the name, which we will every where do as far as the thing will suffer, and it shall lie in our power. And in doing or examining these things, it will be convenient diligently to inquire into the nine things mentioned in the preface. Wee will beginne with the skinne, because that part is first obvious to our senses.

**CHAP. III.**

**Of the utmost skinne or Cuticle.**

The skinne being the first part, and fiyred over all the body, is twofold, that is, the true, and bastard skinne. The true is called by the Grecians *Dermis*, which may almost every where be pulled from the parts lying under it, which it invests except in the face, ears, the palms of the hands, foles of the feet, fingers, and privities, where it stickes so close that it cannot be separated.

The bastard (which first of all wee will declare, because it first presentes it selfe to our sight) is by the Grecians called *Epidermis*, because it covers the true skinne, they terme it commonly the Cuticle. The substantia of it is excrementitious, and as it were a certaine dry flouring, or production of the true skinne. That it draws not its substantia from the seede is apparent by this, that as it is easily lost, so it is easily repaired, which happens not in parts truly spermatical. This utmost thinne skinne, or cuticle, may two manner of ways be made apparent by it selfe, and separated from the other, as by burning with fire, or ardent heat of the Sunne (in some delicate bodies, and such as are not accustomed to be conversant in Sun-shine.) The quantitie in thickness is very small, but the extent is most large, because it covers all the skinne; the figure of it is round, and long, like those parts which it invests. The composition of it is obscure; yet because this Cuticle is the excrement of the true skinne, wee fay it hath its matter from the excrementitious superfuit of the nerves, veins, arteries, and substantia of the true skinne.

The number. The temperaters. The use.

It is in number one, like as the true skinne which it outwardly covers, that it might be a medium betweene the object, and fixed facultie of touching, diffused over all the true skinside which every where lies under it. For the temperature, by the common consent of Physitians, it is in the midst of all excelse; for that seeing it is the medium between the object and facultie, it should be hotter, colder, moister, or drier, it would deceive the facultie by exhibiting all objects, as not as they are of themselves, but as it should be; no otherwise than as to such as looke through red or greene spectacles, all things appeare red, or greene. Wherefore for this reason it was convenient the cuticle should be void of all sense. It hath no action in the body, but it hath use, for it preserves and beautifies the true skin; for it seemes to be given by the singular indulgence of nature, to be a monument and ornament, to the true skinne. This providence of nature, the industrie of some Artizans (or rather Curtizans) doth imitate, who for to seeme more beautifull, do smooth and polifie it. By this you may understand; that not all the parts of the body have action, yet have they their use, because, according to Aristotles opinion; Nature hath made nothing in vaine. Also you muif note that this thinne skinne, or cuticle being lost, may everie where be regenerated, unless in the place which is covered with a feare. For here the true skinne being deficient, both the matter and former facultie of the cuticle is wanting.
The true skin called by the Greeks Derma, is of a spermatieke substance, wherefore being once loft, it cannot be restored as formerly it was. For in place thereof comes a scarre, which is nothing else but flesh dried beyond measure. It is of sufficient thickness, as appears by the separating from the flesh.

But for the extent thereof it encompasses the whole body, if you except the eyes, ears, nose, privies, fundament, mouth, the ends of the fingers where the nails grow, that is, all the parts by which any excrements are evacuated. The figure of it is like the cuticle round and long, with its productions, with which it covers the extremities of the parts.

It is composed of nerves, veines, arteries, and of a proper fleth and substance of its kind, which wee have said to bee spermatическом, which ariseth from the proceffe of the secondine, which leads the spermatieke vessels even to the navell, in which place each of them into the parts appointed by nature, send forth fleth vessels, as are spread abroad and diffused from the generation of the skinne. Which also the similitude of them both, that is, the skinne and membrane Chorion do argue. For as the Charion is double, without fene, encompassing the whole infant, lightly fastened to the first coate which is called Amnios, so the skinne is double, and of it felsen insensible (for otherwife the nerves were added in vain from the parts lying under it) ingirting the whole body, lightly cleaving to the flethie Pannicle.

But if any object that the Cuticle is no part of the true skinne, seeing it iswholly diftrent from it, and easily to be separated from it, and wholly void of fene: I will answer, these arguments doe not prevale. For that the true skinne is more crafie, thicke, fenfible, vivide, and felen, is not of it felsen, being rather by the affiftance and admixture of the parts, which derived from the three principall it receives into its proper substance which happens not in the cuticle. Neither if it shoule happen would it be better for it, but verily exceeding ill for us, because fo our life should lie fit and open to receive a thousand externall injuries, which encompass us on every fide, as the violent and contrary accesse of the foure firt qualities.

There is only one skin, as that which should cover but one body, the which it every number, where doth, except in thofe places I formerly mentioned. It hath connexion with the parts lying under it by the nerves, veines, and arteries, with thofe fubjacent parts put forth into the skinne invefting them, that there may be a certain communion of all the parts of the body amongit themselves.

It is cold and drie in its proper temper in refped of its proper fleth and substance, for it is a spermatieke part. Yet if any confider the finewes, veines, arteries, and flethie threds which are mixed in its body, it will feme temperate, and placed as it were in the midft of contrarie qualities, as which hath growne up from the like portion of hote, cold, moift, and drie bodies. The vfe of the skinne is to keepe fafe and found the continuitie of the whole body, and all the parts thereof, from the violent affaulte of all externall dangers, for which caufe it is every where indewed with fleth, in fome parts more exad, in others more dull, according to the dignitie and necessitie of the parts which it ingirt, that they might all be admonifhed of their fatisfie and prefervation. Lastly, it is penetrated with many pores, as breathing places, as we may fee by the flowing out of sweate, that fo the arteries in their diastole might draw the encompassing aire into the body, for the tempering and nourifhing of the fixed inbred heat, and in the Syphile expell the fuliginous excrement, which in Winter supplie by the cold aire encompassing us, makes the skinne blacke and rough. Wee have an argument and example of breathing through thefe, by drawing the aire in by tranfpiration, in women troubled with the mother, who with our respiration live onely for some pretty space by tranfpiration.
Of the true skinne, follows the membrane, which Anatomists call the flethie Pannicle, whose nature that we may more easily prosecte and declare, we must first shew what a membrane is, and how many ways the word is taken. Then wherefore it hath the name of the flethie Pannicle. A membrane therefore is a simple part, broad and thin, yet strong and dense, white and nervous, and the which may easily, without any great danger be extended and contracted. Sometimes it is called a coat, which is, when it covers and desends some part. This is called the flethie Pannicle, because in some parts it degenerates into fleth, and becomes mutfulent, as in a man from the lower bones, to the hairie of the head, in which part it is therefore called the broad fleth, where as in other places it is a simple membrane, here and there interwound with the fat lying under it, from whence it may seeme to take or borrow the name of the fat Pannicle. But inbeasts (whence it tooke that name, because in thofe a flethie fubftance maketh a great part of this Pannicle) it appears manifeftly flethie and mufculous over all the body, as you may fee in Horses, and Oxen; that by that means being moveable, they may drive and shake off their fleeves, and other troubleome things, by their flaking and contraiing their backs. These things considered, we say the flethie Pannicle in its proper body, is of a nervous or membranous fubftance, as that which hath its originall from the coat Amnios, (which is next to the infant) dilated neare to the navel, and stretched forth for the generation of this Pannicle; in which thing I thinke good to note, that as the membranes chorion and Amnios mutually interwoven with fmall nervous fibers, encompass and invel the child, as long as it is contained in the wombe; fo the skinne and flethie Pannicle knit together by such like bands, engirt the whole body.

Therefore the flethie Pannicle is equall in magnitude and like in figure to the true skinne, but that it lies under it, and is contained in it, in some places mixt with the fat, in others encrased by the fleth interwoven with it, and in other fome is onely a fimple membrane.

The fubftance of it is fuch, as the sight of it presents to our eye, that is, of veins, arteries, nerves, and the proper fleth, some whites mixed and interlaced with fat, and sometimes with mufculous fleth. It is but one, by reaon of the use whereof I shall presently flow, it is fituated between the skinne and fat, or common coat of the membranes, annexed to these and the other parts lying under it, by the veins, nerves, and arteries affending from these inward parts, and implanting themselves into the fubftance thereof, and then into the true skinne.

The temperature thereof is diverse, according to the variety of the parts interwoven with it. The use of it is, to lead, direct, and strengthen in their paffeage, the vessels which are defeminated into the true skinne, and the whole superficies of the body. But in beafts it hath another commoditie, that is, it gives a thawing or trembling motion to their skinne and backe, for that caufe we formerly touched.

Of the Fat.

He fat comming neare the condition of an excrement, rather than of a part (as we said, when we treated of the fitnular parts) is of an oily fubftance, bred of the airy and vaporous portion of the bloud, which sweating through the pores of the coates, or mouthes of the vessels, becomes concerne about the membranes, and nerves, and cold bodies, and turns into fat by the coldneffe of the place. Whereby we may know that cold, or a more remiffe heatre, is the efficient cause of fat, which is manifest by contemplation not onely of creatures of diverfe kindes, but also by thofe of the fame species and fexe, if fo be that the one be colder than the other.

By
By which we may understand, that the fat is the more or less in quantity according to the different temper of the whole body, and of its particular parts; for its composition, it is composed of that portion of the blood which we formerly mentioned, intermixed with certain membranes, nervous fibers, veins and arteries. The greatest part of it lies between the flabby pannicle and the common coat of the Muscles, * Otherwise it is diffused over all the body, in some places more, in some lefse, yet it is always about the nervous bodies, to which it delights to cleave. Most Anatomists enquire whether the fat lies above or beneath the flabby pannicle. But we think this question is both impertinent and idle; being we often see the fat to be on both sides. It is of a middle temper between heat and cold, being it ariseth from the more or less portion of the blood; although it may seem cold in respect of the quantity, that is, of cold by which it concretes. For the rest, moisture is predominant in the fat. The use thereof, is to moisten the parts which may become dry by long fasting, vehement exercise or immoderate heat, and besides to give heat, or keep the parts warme. Although it doth this last rather by accident, than of its own nature, as heated by exercise, or by some such other chance; it heats the adjacent parts, or may therefore be thought to heat them, because it hinders the dissipation of the native and internal heat; like as cold heats in winter, whereby the bellies are at that time the hotter. I know some learned Physitians of our time very much maintained, that the fat was hot, neither did they acknowledge any other efficient cause thereof, than temperate heat and not cold. But I think it better to leave the more subtle agitation of these questions to natural Philosophers. But we must note, that at the joints which are more usually moved, there is another sort of fat, farre more solid and hard, than that which we formerly mentioned; often found mixed with a viscid and tough humor, like the whites of Eggs, that so it might be sufficient for a longer time to moisten these parts, subject whereof to be hurt by dryness, and make them slippery & softer for motion, in imitation whereof they usually grace hard bodies, which must be in frequent motion, as coach wheels and axletrees. And there is another kind of fat, which is called Sebum, because in one thing differing from the ordinary fat, that is much dryer, the moister and softer portion of the fat being dissipatet by the raging heat of the place. For it is found principally about the middle, where there are many windings of arteries and veins, and it is also about the reins, Loines, and bafis of the heart. The fat is wasted by long fasting; is dried and hardened by vehement exercise and immoderate heat. Hence it is that it is much more compact in the palms of the hands, and soles of the feet, about the eyes and heart, so that it resembles the flesh in density and hardness, because by the continuall motion and strong heat of these parts, the thinner portion being dissipatet, and diffused, the more Grosse & terestriall remaine.

The quantity, the compote, the fire.

I was desiring the opening a body, & then we see the fat in which the fat in the lower part of the lower belly was in which the fat above, & under, more the breast between & and the rack, which I thought good to remember in this place both for the rarity of the thing, as also because it was excessively reported, and the place mentioned for trying the Observation or Call was for me, which was false, for it did not much exceed the quantity of that part, in other fat matters. The Tempers, & be帅, the Folios, &c. or fame, in what parts and for what cause the fat is more dense.

Of the common coat of the Muscles.

Ext under the fat, appeares a certaine coatse, spread over all the Muscles, and called the common coat of the Muscles, it is of a nervous substance, as all other membranes are. The quantity and breadth thereof is bounded by the quantity of the Muscles which it involves, and fits it selfe to, as that which encompas the Muscles of the Epigastrium, is of equall largeh with the same Muscles. The figure of it is round. It is composed of veines, nerves, arteries and its peculiar flesh consisting of three sorts of fibers; the beginning of it is from the Periostium, in that part where the bones give ligaments to the Muscles, or according to the opinion of others, of the nervous and ligamentous fibers of the Muscles, which rising up and diffused over the flabby superficies thereof, are united for the generation of this coat. But this membrane arising from the Periostium (as every membrane which is below the head takes its original from the Periostium either primarily, by the interposition of no Medium, or secondarily is stretched over the Muscles by their tendons. But if any object, that this membrane plus from the belly of the Muscle, may seem

C H A P. V I I.

The Subflance, the quantity, the composition, the original.
What the white line is.

What a Muscle is, and how many differences there be thereof.

Muscle is the instrument of voluntary motion; and simple voluntary motion is performed by six manner of ways, upwards, downwards, forwards, backwards, to the right hand and to the left; but the compound one way, which is circularly, the which is performed by the continual succession of the motion of the Muscles ingrating the part. Such a Motion Falconers use when they stretch forth their hand and Lure their Hauke. We have some parts, which have motion without a Muscle, but that motion is not voluntary; such parts be the heart, lomacce, guts, both the bladders (that is, that of the Gall and that of the urine) and divers other which have the motions of attraction, expulsion and retention, by the means of the three sorts of fibers; for they draw by the right, expell by the transverse, and retaine by the oblique. The differences of Muscles which are many and diverse, are taken from their substance, original, infection into the part which they move, forme or figure, holes or openings, magnitude, colour, size, kind of fibres, their conjunction or connexion, heads, bellyes, tendons: opposition in action and office. Some in substance be nervous, venous, arterial, because they have manifest nerves, veins and arteries, as the MidriFFE, the Intercostall and Epigastricke Muscles and many more, and that for their difference from other Muscles, into which neither nerve nor vein, or Arteryes are manifestly inferred, although secretly they admit them all for senfe and motion, life and nourishment, such are the Muscles of the wreath, the wormy Muscles of the hands and feet; for if there be any nerves observed in them, they are very small. Some had rather make the difference of Muscles thus, that some of them are fleshly, some nervous, others membranous. From their original, some arise from the bones, as these which move the hands, arms and Leggs; others from girldes, as the Muscles of the throat; others from membranes which invest the tendons, as the wormy Muscles of the hands and feet; others from ligaments as the Extenders of the fingers; others from other muscles, as the two lower Muscles of the yard which proceed from the Sphincter Muscle of the fundament. Others have no original, as the membrane which we call the fleshly pannicle affymes flesh in certain places, and degenerates into a Muscle; such are the Forefinger sucking Muscles of the tectides, the large Muscles of the face, and if you pleaze the MidriFFE, as that which is composed of two coats, the one in compassing the ribs and the Peritoneum, hath flesh in the midst between the two membranes. And moreover some Muscles have their original from one only bone, as those which bend and extend the
the Cubite, others arise of many bones as the oblique descending, the Dorsal and many Muscles of the necke, with aris together from many spondyls and sides of spondyls. There be others according to the opinion of some men, both from the bones and griffles of the Tuba at the right or direct. Muscles of the Epigastrium yet by their favour I think otherwise. Because by the Anatomical and recovered axioms, A Muscle is there thought to take his beginnings from whence he receives a nerve; but these Muscles take a nerve from the intercostall muscules, wherefore their original ought to be referred to the sides of the brest-blades, as shall be shewed in due place.

From their inception arise these differences, some are inferred into a bone, as those which move the head, Armes and Legs; others into a gristle, as those of the Throat, eyelids, nose and the oblique descendant muscles of the Epigastrium, some into the skin, as the muscles of the lips; others into the Coates as the muscles of the eyes; others into Ligaments, as the muscles of the yeard. But these differences following may be drawn both from their inception and original. For some muscles arising from many parts, are inferred into some one part, as divers of these which move the arm, and the shoulder, which arising from many spondyls are inferred into the bone of the shoulder and the shouder blade. Others arise from one part, and inferred themselves into more, as those which arise from the bottom of the shoulder blades, are extended and inferred into some eight or nine of the upper ribs, to help respiration, and the benders and extenders of the fingers and toes. Others arising from many bones are inferred into as many, as some of those which serve for respiration, may be drawn from their original and inception. For some muscles arising from many bones are inferred into as many, as some of those which serve for respiration, and the motion thereof, as the three muscles of the Hip; others arise from an upper bone & are not inferred into the next, but into some other, as the long muscles. Some are named from the parts they move, as the temporal muscles because they move the temples; others from their office, as the grinding muscles, because they move the skin as a mill, to grind and crumble the meale. From their form and figure, because some are like Mice, other like Lizards which have their Leggs cut off, for that they imitate in their belly, body or tendon, the belly or tailc of such creatures, & from whence the names of Musculus and Lascetum are derived. Such are those which bend the wreft, and which are fastened to the bone of the Leg, & which extend the foot. Others are triangular, as that which lifts up the arm, called Epamin, and others, and that which draws the arme to the breast, called the Pectorall muscle. Others quadrangular as the Rhomboides, or Lozenge muscle of the shoulder blade and the two hundefum-muscules serving for respiration, and two of the wrefts which turne down the hand; Others consist of more than four angles, as the oblique descending, and that muscle with joynes it selfe to it from the shouder blade; others are round and broad, as the Midriffe, others circular as the Sphincter muscle of the fundament and bladder, others are of a pyramidal figure, as the seventeenth muscle of the eye, which compassthe optick nerve in beasts but not in men. Others have a femicirculer forme, as that which flushs up the eye fixt at the better corner thereof. Others resemble a Monks cowle, or hood, as the Trapezius of the shouder blade. Besides others at their first original are narrow, but broad at their inception, as the Saw-muscle of the shouder and the tranverse of the Epigastrium; others are quite contrary, as the three Muscles of the Hippe; others keep an equall breadth or bignesse in all places, as the intercostall muscules and those of the wreft; others are long and slender, as the long muscle of the thigh, others are long and broad, as the oblique descending muscules of the Epigastrium, others are directly contrary, as the Intercostall, which are very narrow. From their perforations, for some are perforated, as the Midriffe which hath three holes, as also the oblique and transverse of the Epigastrium, that so they may give passage forth to the preparing spermarieke vessels, and to the circulatory vessels, the Coate Erythroidea associating and strengthening them; others are not perforated. From their magnitudes, for
for some are most large, as the two muscles of the Hip, others very small, as the eight small muscles of the neck, and the proper muscles of the Throat, and the wormy muscles. Others are of an indifferent magnitude. From their colour, for some are white and red, as the Temporall muscles, which have Tendons coming from the midift of their belly; others are livide, as the three greater muscles of the calf of the leg, which colour they have by the admixture of the white, or tendinous nery coat with the red flesh, for this coat by its thickneffe darkning the colour of the flesh, so that it cannot fhew its redneffe and freth colour, makes it feeme of that livide colour. From their fiaton, for some are superficially, as those which appear under the skin and fat; others depee in and hid, as the smooth and foeure twin muscles; some are stretched out and as it were spread over in a frighted and plains passage, as the muscles of the thigh which move the legge, except the Ham-muscle; others oblique, as thofe of the Epigastrium; otherfome tranffe, as the tranffe of the Epigastrium, where you must observe, that although all the fibers of the muscles are diree, yet we call them oblique, and tranffe by comparing them to the right muscles, as which by the concoure of the fibers make a frighted or acute angle.

From the forts of fibers; for some have one kind of fiber; yet the greateft part enjoy two forts running up and downe, that they either are croffed like the letter X, as happens in the pectoral and grinding muscles; or elle doe not concour, as in the Trapezij. Others have three forts of fibers, as the broad muscle of the face.

From their coherence and connexion, or their texture of nervous fibers; for some have fibers somewhat more diftant and remote immediately at their originall, than in other places, as you may fee in the muscles of the buttocks; Others in their midift and belly, which by reafon thereof in fuch muscles is more big or tumid, their head and tail being flender, as happens in moft of the muscles of the arm and leg, in which the difte maffe of fleth interwoven with fibers, diffoynes the fibers in to greate a diftance; in otherfome the fibers are more diftant in the tail, as in the greater Saw-muscle arising from the bottome of the shoulder blade; in others they are equallly diftant through the whole muscle, as in the muscles of the wret and betwene the ribs.

From their head; for in some it is flethy interwoven with few fibers, as in the muscles of the buttocks; in others it is wholly nervous, as in the moft-broad-muscle common to the arme and shouder blade, and in the three muscles of the thigh proceeding from the tuberofity of the huile bone; in fome it is nervous and flethy as in the internall and externall muscle of the arme. Besides fome have one head, others two, as the benders of the elbow and the externall of the legge, others three as the Threeheaded muscle of the thigh. But wee muft note that the word nerve or finews is here taken in a large signification, for a ligament, nerve and tendon, as is thefe with relation to the f枕len and the Throat; and moreover we muft observe, that the head of a muscle, is one while above, another while below, otherwiles in the midift as in the Muscles, as you may know by the infection of the Nerve, because it enters the muscle by its head.

From their belly, there be fome differences of muscles taken; for some have their belly immediately at their beginning, as the muscles of the buttocks, others at their infection, as the Midrioff. Others juft at their head, as thofe which put forth the Calfe of the legin others it is somewhat further off, as in thofe which draw backe the arme, and which bend the legge; in otherfome the belly extends even from the head to the tail, as in the intercffeal muscles and thofe of the wret; in others it is produced even to their infection, as in thofe of the palmes of the hands and soles of the feet; fome have a double belly, diftinguifhed by a nervous substance; as thofe which open the mouth, and thofe which arife from the route of the lower prosecle of the shouder blade.

Moreover the differences of muscles are drawne also from the Tendons, for fome have none, at leaft which are manifeft, as the muscles of the lips and the sphinter muscles, the intercffeal and thofe of the wret; others have them in part, and want them in part, as the Midrioff; for the Midrioff wants a Tendon at the ends of the fhorter ribs, but hath two at the firft Vertebra of the Loines in which it is terminated.

Others
Others have a Tendon indeed. But some of these move with the bone, some not, as the muscles of the eyes, and besides, some of these have broad and membranous tendons, as the muscles of the eyes and Epigastrium, except the right muscles; in others they are thick and round, as in the tendons of the fingers; in others they are lefle round, but more broad than thick, such is the Tendon arising from the thigh muscles and Soleus of the leg: others have short Tendons, as the muscles which turn the hand, others some long, as those of the palmae of the hands and soles of the feet; besides others produce Tendons from the end of their belly which Tendons are manifest, others from the midst, as the Temporal muscles.

Besides also others diffuse many tendons from their belly, as in the hands the tendons of the fingers, and the tendons of the feet. Others put forth but one, which sometimes is divided into many, as tho' which bend the third articulation of the foot; other while many muscles by their meeting together make one Tendon, as the three muscles of the Calce of the leg, and those which bend the cubit and leg. All Tendons have their original, when the nerves and ligaments dispersed through the fleshy substance of a muscle, are by little and little drawn and meet together, until at last carried to the joint they are there fastened for the fit bending and extension thereof. From the contrariety of their Actions, for some parts have contrary muscles, benders and extenders, others parts have none, for the Cods and fundament have only lifters up. From their function, for some are made for direct motions, as those which extend the fingers and toes, others for oblique, as the Supinators of the hand and the Pronators; others performe both, as the pectoral muscle, which moves, the Arm obliquely upward and downward, as the upper and lower fibers are contracted, and also our right, if all the fibers be contracted together, which also happens to the Deltoide and Trapezius. I have thought it good to handle particularly these differences of muscles, because that by understanding them the prognosticke will be more certain; and also the application of remedies to each part, and if any occasion be either to make incision, or future, we may be more certain, whether the part afflicted be more, or leffe nervous.

CHAP. IX.

Of the parts of a Muscle.

Having declared the nature and differences of a muscle, we must note that some of the parts thereof are compound, or universal, others simple or particular. The compound are the head, belly and tail. The simple are ligaments, a nerve, flesh, a vein, artery and coat. For the compound parts, by the head we understand the beginning and original of a muscle, which is one while ligamentous and nervous, other while fleshly. By the belly, that portion which is absolutely fleshly; But by the belly, we understand a Tendon consisting partly of a nerve, partly of a ligament promiscuously coming forth from the belly of the muscle. For as much as belongs to the simple, which are fixed in number, three are called proper, and three common. The proper are a Ligament from a bone, a nerve proceeding from the Braine, or spinal marrow, and flesh compact by the concretion of blood. The Common are, a vein from the Liver or trunke arising from thence, an artery proceeding from the Heart, a Coat produced by the nervous & ligamentous fibers spreading over the superficies of the muscle. But for the simple use of all such parts, the nerve is as it were the principal part of a muscle, which gives sense and motion, the Ligament gives strength, the fleshy contains the nervous and ligamentous fibers of the muscle and strengthens it filling up all the void spaces, and also it preserves the native humidity of these parts and cherieth the heat implanted in them; and to conclude, defends it from all externall injuries; for like a fairie opposed it helpe against the heat of the Sunne; and as a garment against the cold; and as a cushion in all falls and bruises, and as a buckler or defence against wounding weapons. The vein nourishes the muscle, the arterie gives it life, the coat preserves the

The compound & simple parts of a

muscule.

What an each simple particle hath in a

muscule.
the harmony of all the parts thereof, left they should be any ways disjoin'd or cor-
rupted by purulent abscesses breaking into the empty or void spaces of the muscles, as we see it happens in a Gangrene, where the corruption hath invaded this membrane
by the breaking out of the more acrid matter or flux.

\[\text{\small Chat. X.} \]

\textit{A more particular inquisition into each part of a muscle.}

Having gone thus farre, it remains, that we more particularly inquire into
each part of a muscle, that (if it be possible,) nothing may be wanting to
this discourse. Wherefore a Ligament properly so called, is a simple part of
mams body, next of a bone and gristle, the most terrestrial, dry, hard, cold, white, taking its original immediately, or by the interpolation of some Medium
from the Bones, or Gristles (from whence also the Muscles have their beginning)
wherby it comes to passe that a ligament is void of sense, unleas it receive a nerve from
some other place; (For to the Ligaments which compose & strengthen the Tongue
and yeard, are partakers of sense: and it infers it self into the bone and gristle that so it
may bind them together, and strengthen and beautifie the whole joynt or connexion;
(for these three be the principal uses of a Ligament) then diffusing it self into the mem-
branes and muscles to strengthen those parts. A Nerve to speake properly, is also a
simple parts of our body, bred and nourished by a groffe and Phlegmaticke humeur,
such as the braine, the originall of all the nerves, and also the Spinall narrow en-
dewed with the faculty of feeling and oftentimes also of moving. For there be divers
parts of the body which have nerves, yet are deffitute of all voluntary motion, having
the sense only of feeling, as the membranes, veins, arteries, guts and all the entrailes.
A nerve is covered with a double cover from the two membranes of the braine, and
besides also with a third proceeding from the ligaments which fasten the hinder part
of the head to the Vertebrae, or else from the Peristrium. Wee understand no other
things by the fibers of a nerve, or of a Ligament, than long and slender threads, white,
folid, cold, strong more or leffe according to the quantity of the subftance, which is
partly nervous and fenfible, partly Ligamentous and infenfible. You must imagine
the fame of the fleshy fibers in their kind, but of these threads some are straight for
attraction, others oblique for retention of that which is convenient for the creature,
and laftly some tranverse for the expulsion of which is unprofitable. But when these
transverse threads are extended in length, they are lefseth in breadth; but when they are
direcly contracted, they are shortened in length. But when they are extended all to-
gether as it were with an unanimous content, the whole member is wrinkled as con-
tracted into it selfe, as on the contrary it is extended when they are relaxed. Some of
these are belowe upon the animall parts, to perfome voluntary motions; others
upon the vitall to perfome the agitation of the Heart and Arteries; others upon the
naturall for attraction, retention and expulsion Yet we must obferue, that the attraction
of no fimmilar part is perfomed by the helpe of the foresaid fibers or threads, but
rather by the heat implanted in them, or by the Hamhing of Empinette, or the fim-
ilarity of the subftance. The flesh also is a simple and fift part composed of the purer
portion of the blood infinuating it selfe into the spaces between the fibers, fo to in-
well them for the uses formerly mentioned. This is as it were a certaine wall and Bul-
warke against the injurys of heat and cold, against all falls and bruises, as it were a
certaine soft pillow or cushion yielding to any violent imprefion. There be three
fors of flesh: one more nutty, as the mufcular flesh of perfecte creatures and fuch
as have blood; for the flesh of all tender and young things having blood, as
Calves, and also of all farts of fift, is whitith, by reafon of the too much humidity
of the blood. The fcond kind is more pallid, even in perfecte creatures having
blood, fuch is the flesh of the heart, remmacke, weftand, guts, bladder, wombe.
The third is belonging to the entrailes, or the proper subftance of each entraile, as that
which remains of the Liver (the veins, arteries and coate being taken away) of the
bladder
bladder of the Gall, brain, kidneys, milk. Some add a fourth of flesh which is spongy, and that they say is proper to the tongue alone.

A vein is the vessel, or channel of the blood, or bloody matter; it hath a spermaticke substance, consists of one coat composed of 3 sorts of fibers.

An Artery is also the receptacle of blood but that spiritual and yellowish, consisting in like manner of spermaticke substance; but it hath two coats: with three sorts of fibers, the external wherein is most thin, consisting of right fibers and some oblique. But the inner is five times more thick and dense than the external, interwoven with transverse fibers; and it doth not only containe blood and spirit, but also a serous humor, which we may believe because there be two eminent Arteries, as well as veins.

But the inner coat of an Artery is therefore more thick, because it may containe blood which is more hot, subtle and spiritual, for the spirit, seeing it is naturally more thin and light and in perpetuall motion, would quickly fly away, unless it were held in a stronger hold. There is other reason for a vein, as that which contains blood grosse, ponderous and flow of motion. Wherefore if it had acquired a dense and grosse coat, it could fearie bee distributed to the neighboring parts. God the maker of the universe, foreseeing this, made the coats of the vessels contrary to the confidance of the bodyes contained in them. The Annulosis of the veins and Arteries, that is to say, the application of the mouths of the one to the other, is very remarkable, by benefit of which they mutually communicate and draw the matters contained in them, and so also transufe them by infeensible passages, although that Annulosis is apparent in the vein and artery that meet together at the Joint and bending of the Arme, which I have sometimes shewed in the Physicke schooles, at such time as there directed Anatomy.

But the action or function of a muscle is either to move, or confirme the parte according to our will, into which it is implanted, which it doth when it drawes it selfe towards its original, that is to say, it's head. But wee define the head by the insertion of the nerve, which wee understand by the manner of the working of the Mufcle.

Chap. XI.

Of the Muscles of the Epigastrium, or upper belly.

Now seeing that wee haue taught, what a muscle is, and what the differences thereof are, and what simple and compound parts it hath, and what the ufe, action and manner of action in each partes; it remaines that wee come to the particular explication of each Mufcle, beginning with thofe of the lower belly, as those we which first meet withall in dislocation.

There are 8 in number, 4 oblique, 2 on each side, two right or direct one, on the right, another on the left side, and in like manner 2 transverse. All these are alike in force, magnitude and action, so mutually compos'd, that the oblique descendant of one side, is conjoined with the other oblique descendant on the other side, and fo of the reft.

We may add to this number the 2 little. Supplying or Assistance muscles, which are of a Pyramidal forme and arise from the thare-bone, above the insertion of the right muscles. Of the oblique muscles of each side the one ascends, the other descends, whereupon it comes to pafs, that they are called the Oblique descendant and Ascendant Mufcles. Thofe oblique which we first meet with, are the descendant, whose substance is partly fanguine, partly spermaticke; for they are fleshy, nervous, ligamentous, veinous, arterious and membranous. Yet the fleshy portion is predominant in them, out of which respect Hippocrates is wont to express the muscles by the name of fleshy; their greatness is indifferent betwixt the large and the small muscles; their figure 3 square. They are compos'd of the fore-mentioned parts, they are two
Their  consensus. Their  action.  
aponentor,  is  from  the  oblique  Mucles,  they  are  onely  terminated  in  the  White  line  and  not  in  the  Share-
bone. For  (faith  he)  wherefore  should  they  be  inserted  into  the  Share-bone  which  is  not  moved?  But  because  it  would  be  an  infinite  labour  and  trouble  to  set  down  at  large  the  several  opinions  of  all  Authors  of  Anatomy,  I  have  thought  it  sufficient  for  me  to  touch  them  lightly  by  the  way.  Their  connexion  is  with  the  oblique  descendant  lying  under  them,  and  with  the  directe,  or  right.  Their  temperament  is  twofold,  the  one  hot  and  moist  by  reason  of  the  belly  and  the  fleiwy  portion  of  them;  the  other  cold  &  dry  in  respect  of  their  ligamentous  and  tendinous  portion.  Their  action  is  to  draw  the  parts  into  which  they  are  inserted  towards  their  original,  or  else  to  unite  them  firmly.  Yet  each  of  these  privately  and  properly  draws  the  limb  in  an  oblique  manner  towards  the  Cartilage  Scutiformis  or  breast-blade.  Then  follow  the  oblique  descendant,  who  have  the  fame  substance,  quantity,  figure,  compofure,  number  and  temper  the  descendant  have.  They  are  furrinate  between  the  descendant  and  tranverfe  with  whom  they  have  connexion,  especially  by  the  vessels  which  are  brought  from  the  parts  beneath.  All  the  fleiwy  parts  arise  from  the  rackbones  of  the  Haunch  to  the  ends  of  the  baftard  ribs,  which  they  fhew  to  admit  above  and  below,  being  fleiwy  even  to  the  fourth,  and  then  becoming  membranous  they  take  their  way  to  the  white  line,  with  a  double  aponen toris,  which  paffes  through  the  right  Mucles  above  and  below,  as  we  may  plainly  fee  from  the  navel  downwards.  In  their  fleiwy  part  they  draw  their  original  from  the  spine  of  the  Haunch  bones  a  little  lower  than  the  descendant  and  in  their  fleiwy  part,  but  for  their  membranous  parts,  they  arife  before  from  the  Share  bone;  but  behind  from  the  fpondyles  of  the  holy  bone,  and  Peredra's  of  the  loines  obliquely  ascending  upwards  to  the  white  line,  into  which  they  are  terminated  by  an  aponen toris  or  membranous  tendon  (which  fhew  to  penetrate  the  right  Mucle  upwards  and  downwards,  especially  under  the  navel)  but  by  their  fleiwy  part  at  the  ends  of  all  the  baftard  ribs,  which  they  fhew  to  receive  above  and  below.  And  because  these  Mucles  are  terminated  in  the  white  line,  they  have  also  another  use,  yet  fuch  as  is  common  to  all  the  muscles  of  the  Epigastrium,  that  is  to  prefs  down  the  Guts.  Their  action  is  (if  they  performe  it  together)  to  draw  downe  the  cheft,  and  dilate  the  breft;  but  if  their  actions  be  separate,  they  draw  the  chief  to  the  hip  with  an  oblique  motion.  After  these  follow  the  right  Mucles,  so  called  because  they  defcend  according  to  the  length  of  the  body,  &  because  they  have  right  or  ftraitely  fibres.

Wee  will  fay  nothing  (to  fhuue  prolixitie,)  which  in  all  other  places  wee  will  avoid,  of  their  substance  and  other  conditions,  which  they  have  common  with  the  fore  mentioned  Mucles.  They  are  furrinate  in  the  eminenteft  or  extuberating  region  of  the  belly,  bounding  the  Epigastrium  taken  in  generall,  (or  the  fuperficiary  belly,)  they  are  devided  by  the  manifeft  intercoufe  of  the  white  line,  even  to  the  Navel,  in  which  place  they  fhew  to  be  united  even  to  the  place  of  their  infertation.  Their  Draw  their  original  not  from  the  Share  bone,  as  some  would  have  it,  but  according  to  the  infertation  of  their  nerves,  from  the  sides  of  the  Cartilage  Scutiformis  &  the  ends  of  the  firft  feventh  and  eight  ribs,  but  they  end  in  the  Share  bone  where  they  make  a  common  tendon  sufficiently  strong  and  fhort.  Synius,  Vfalus  and  Columbus  think  they  arife  from  the  Share  bone,  because  they  cannot  be  inferted  into  that  bone,  because  is  immovable.

You  may  perceive  in  these  Mucles  certain  nervous  &  tranverfe  interreftions,  often  times  three  in  number  for  the  ftrengtb  of  thefe  Mucles  (of  which  Galen  makes  no  mention,  although  they  may  be  feen  in  Apes.)  And  alfo  in  the  inner  fide  of  thefe  Mucles  you  may  fee  flour  veins  and  as  many  arteryes,  of  fome  crepce  upwards,  others  run  downwards,  The  upper  called  the  Mamillary  defcend  from  the  Axillare  by  the  fide  and  lower  partes  of  the  Sternum,  the  flenderer  portions  thereof  being  distributed  by
by the way, to the Mediaffinum, and about the fourth and fifth rib to the Dugges, from whence they take their name.

That which remains breaking out by the sides of the Brest-blade infects it self into those muscles creeping along, even almost to the navell, in which place they are manifestly united (that is the veines with the veines, and arteries with the Epigastrick, which ascend from the upper part of the fide, and the arteries on each side under the fide muscles till they meet with these mammary veffels. That you may finde this concourse of the veines and arteries about the navell you must follow both the upper and the lower somewhat deepe into the flesh; and the blood on both fides from above downwards, and from below upwards, until you shall finde the excofulation of these veffels, which will appear by this, that the blood will flow from this into that and from that into this, otherwise you can scarce perceive it, by reason of the fmalnes of fuch veffels which want blood. But had by the benefit of fuch concourse of the veffels, the matters may be conuerted and transported both from the wombe to the dugs, and againe from the dugs to the wombe, appeares in Nurese, who want their courfes, when the milk comes into their dugs, and on the contrary lose their milk when their courfes flow plentifully. Otherwise to what purpofe should there be fuch concourse betweene the veffels of the pappes and wombe, for there are veines and arteries diffused to the fides of the wombe from the roote of the Epigastrick; for indeed the Epigastrick which in their rofe meets with the mammary, goe not to the wombe, though they be next to them, and arife from the fame trunke with the Hypogastrick vein of the wombe. The Action of these muscles is, to move or draw near together the parts of the Hypogastrick to the procordia or Hypochondryes. Their use, in Colombus opinion is, to draw the Brest downwards fo to dilate it. At the ends of thefe Nature hath produced two other small Muftes from the upper part of the fharpe bone, of a triangular figure for the fupport of the thicke and common tendon of the right Muftes, whereupon they are called Succenturiati, or affifters.

Some (moved with I know not what reafon) would have thefe two small Muscles to help the erception of the yard. Colomus thinks they should not be separated from the right, and that they only are the fteath beginnings of the right. But on the contrary Balliarius manifielly proves them different and separate from the right and shews their vice. The Tranfverfe remaine to be spoken of, so called by reafon of their fibers which make right angles with the fibers of the right Muscles. They have a quadrangular figure fittuate upon the greatest part of the Peritoneum, to which they flicke fo close that they scarce can be separated. They take their original from the production of the loynes, the Eminency of the Haunch-bone, the ftransverse productions of the vertebrae's of the loynes and the ends of the bafhard ribs; contrary to the opinion of many, whom the infection of the nerves convinces, but they end in the white line, as the rest doe.

Their action is to preffe the guts, especially for the expulsion of excrements.

But all the 8 recited Muftes, besides their proper use, have another common, that is, they hand for a defence or Bulwarke for all the parts lying under them, and serve for the expulsion both of the excrements, infant, and vapours, and also for the stinching of the voice, as experience shews in thofe who found Trumpers and Cornets.

Therefore thefe Muftes doe equally on every side preffe the Belly. But the Midriffe, the intercoftall Muftes affihing it, doth drive from above downwards, from which confining coaction follows the erception of the excrements by the fundament; but unleffe the Midriffe should affife, thefe Muftes would preffe the excrements no more downwards, than upward to the mouth. Although to this erception of the excrements, it is not fufficient that the Epigastrick, Midriffe and intercoftall Muftes preffe the belly, but the Muftes of the throtle must be alto fure. For the mouth being open the excrements never goe well fouth, because the vapours that paufe out of the mouth,

Why when the mouth is open the excrements gome not bowly forth.
mouth, which being restrained and driven to the Midriffe, by stretching it powerfully thrusts downe the excrement. Wherefore Apothecaries when they give gifflers, bid the Patient to open his mouth, that the giffler may easilie goe up, which otherwise would fearely go up the mouth being shut, because so we should have no place empty in us, into which the glysfer might be admitted.

The first Figure of the Lower belly.

A B C D. The upper, lower, and lateral parts of the Peritoneum.
E F. The white Line from the Griffe of the breast-bone, called the Brest-Bridge, or the Commis- surse or meeting of the Share-bones.
F. The Griffe of the Breast-bone Carrying out-tourns or the Brest-blade.
G. The Nevada which, all the Muscles being taken away, must be kept for the demonstration of the Venous Veins of.
H H. The productions of the Pe- ritoneum which contain the Seminare Vessels on either side.
I. The hole which stretcheth to the Seminare Vessels of Men.
II. A Veine and an Arterie from the Epigastrum, which being carried up under the right Muscle, doe here hang down, and are distributed into the lower part of the Adomem.
III. A Veine and an Arterie from the mammall Mammary, proceeding from under the Bone of the Brest, are carried downward through the right Muscles and are distributed into the upper part of the Adomem.
IV. The place wherein the right Muscles arise, which being here cut off, doe hang down, that their Vessels may the better be seen.
V. The Anasomosis or intercommunication of the forefaid Vessels, making the coxzen of the "Adomem, and the Navel, & of the Woman, with the Brests as some think.
VI. Branches of Veines running into the sides of the Peritoneum.

N. The place of the Hamsh Bone bared, to which the Oblique and the Transverse Muscles doe grow.

Of the white line, and Peritoneum or Rim of the belly.

The white line is nothing els, than the bound and extremities of the Muscles of the Epigastrum distinguishing the belly in the midst into two parts, the right and left. It is called white, both of its owne colour, and also for that no fleshy part lies under it, or is placed above it. It is broader above the Navel, but narrower below, because the right muscles doe there grow into one, now we must treat of the Coat or membrane, Peritoneum or Rim of the belly, it is so called, because it is stretched over all the lower belly and particularly over all the parts contained in the ventricle, to which also it freely lends a common coat: It hath a superficie so small, that all other membranes have, the quantity of it in thickness is very small, (for it is almost as thin as a spiders web) yet differing in divers places in men and women; for men have it more thick and strong about the Navel, that so it may contain the extension of the stomach, often stretched beyond measure with meat and drinke. On the contrary women have it so thick and strong below their navel that it seems double, that so they may more easily endure the distention of their womb caused by the child contained in it. But above the navel men and women have the Peritoneum of an equal strengthe, for the same same reason. The longitude and latitude of it is knowne by the circumcrispation of the belly.
The figure is round and some what long; it puts forth some productions, like finger stanches, both for the leading and strengthening the spermative vessels and the Cremafer muscles of the Testicles, and besides the excretuary vessels, as also to impart a coat to the testicles and all the natural parts.

It is composed of slender, membranous and nervous fibers, certain small branches of veins and arteries concurring with them, which it receiveth for life and nourishment from the adherent parts.

This membrane is one in number; and besides every where one and equal, although Galen would have it perforated in that place where the spermaticke vessels descende to the Testicles; But in truth we must not thinke that a hole, but rather a production as we said before.

The latter Anatomists have observed, the Coxe Peritonaeum is doubled below the Navell, and that by the spaces of these reduplications the umbilical arteries ascend to the Navell.

It is circinate here the natural parts and accompanies them about, and joined by the coat, which it glues them, as also on the sides, it is joined to the corseteas of the loines; from whole ligaments (or rather periostium) it takes the original; on the lower part it cleaves to the bare bone; and on the upper to the midriff whole lower part it wholly invets; on the fore or outer parte it thickes so close to the tranverse muscles, that it cannot bee pluckt from them but by force, by reason of the complication and adhesion of the fibers thereof with the fibers of the proper membrane of these muscles, which membrane in Galens opinion proceeds from this Peritomeum, that fo it is no marvaille that we may more callifie breaken, than separate these two coats. It is of temperature cold and dry as all other membranes are.

It hath many uses, the first whereof is, to invet and cover all the parts of the lower belly, specially the kall, leaft it should be squeezed by great compresfures and violent attempts into the empty space of the muscles, as it sometimes happenes in the wounds of the Epigastrium, unless the lips of the ulcer bee very well united: for then appeareth a tumor about the wound by the guts and kall thrufing without the Peritoneum into those spaces of the muscles, from whence proceed cruell pains.

Another use is to further the ealing forth of the excrements by pressing the ventricile and guason the foreside, as the Midriff doth above, as one should doe it by both their hands joyned together.

The third use is, it prohibits the repletion of the parts with flatulency after the expulsion of the excrements, by straining and pricking them downe.

The fourth and last is, that it containeth all the parts in their fear and bindes them to the backe-bone, principally that they should not flye out of their places by violent motions, as leaping and falling from on high.

Lastly wee must know, that the Rim is of that nature, that it will easilly dilate it selfe, as wee see in Dropies, in women with child, and in tumors against nature.

Chap. XIII.

Of the Epiploic, Omentum, or Lizbus, that is the Kall.

After the containing parts, follow the contained, the first of which is the Epiploam, (or Kall) so called, because it is as it were sways upon all the guts.

The substance of it is fatty and spermaticke, the quantity of it for thickenesse is diverse in diverse men according to their temperament. The latitude of it is described by the quantity of the guts. It is in figure like a Purse, because it is double. It is compos'd of veins, arteries, fat and a membrane, which sliding downe from the gibbous part of the ventricile, and the flat part of the Gut Duodenum and spleen over the Guts, is turned backe from the lower belly to the top of the Colon. It is one as we said covering the Guts, It hath its cheefe connection.
The connexion of the spine's of the loines, from which place in beasts it seems to take a coat, as in men from the hollow part of the spleen and gibbous of the ventricle and depressed part of the Duodenum, from whence doubled it is terminated in the fore and higher part of the Collieke gur. Which mov'd, Galen to write that the upper part of the membrane of the Kall was annex'd to the ventricle, but the lower, to the lower part of the Collieke Gur. From the vessels of which parts it borrowes his, as also the nerves, if it have any, The temper of it in lean bodies is cold and dry, because their Kall is without fat, but in fat bodes it is cold and moist by reason of the fat. The use of it is twofold. The first is to heat and moisten the Guts, and help their concoction, although it doe it by accident, as that which through the density of the fatte hinders the cold aire from piercing in, and also forbiddes the dissipation of the internal heat. Another use is, that in want of nourishment in times of great famine, for sometimes it cherishes, and as it were by its dew preserves the innate heat both of the ventricle and the neighbouring parts, as it is written by Galen. Moreover we must observe, that in a rupture or relaxation of the Peritomeum the Kall falls downe into the serotum, from whence comes that rupture wee call, Episcele. But in women that are somewhat more fat it thrushes it selfe betweene the bladder and the nekke of the wombe, and by its compression hinders, that the seed comes not with full force into the wombe, and so frustrates the conception. Besides, when by a wound or some other chance, any part of it be defective, then that part of the belly which answers to it, will afterwards remaine cold and raw, by reason of the before mentioned causes.

The second figure of the Same belly.

A. A, B, B. The inner face of the Peritomeum cut into foure parts, and so turned backward.
B. The upper is sheweth the implantation of the Umbilical Veines into the Liver.
C. The Navell separeted from the Peritomeum.
D. From D to the upper B. the Umbilical Veines.
E, F. The fore part of the stomack blowne up, neither covered by the liver nor the Kall.
F, F. A part of the Gibbous side of the Liver.
G. Vessels disseminated thorow the Peritomeum.
* The Breit blade.
H. The bottome of the Bladder of Vrinc.
I. The connexion of the Peritomeum to the bottome of the Bladder.
K, K, K, K. The Kall covering the Guts.
M. N. Vessels and Sinewes embrac'ing the bottome of the Stomacke.
O. The meeting of the Vessels of both sides, so that M, N, and O, shew the frame which Aristotele mentions 3, his 4, da part, Annm, where he faith, that the Kall ariseth, and proceeds from the midft of the belly. P, P. Branches of vessels running along the bottom of the stomacke Q, Q, Q. Certain branches of the Vessels distribut'd to the upper membrane of the Omentum, & compaissed with Fat. Q. The two Umbilical arteries going down by the sides of the bladder to a branch of the great arterie.
B. The Ligament of the Bladder which is shew'd for the Vrinc.
Gall. XLIIL

Of the Ventricle of the Stomach.

Now we must speak of the Stomach, the receptacle of the food necessary for the whole body, the seat of appetite, by reason of the nerves dispersed into its upper office, and so into its whole substance. The substance thereof is of a softer nature than sanguine, because that for one definite membrane, it hath two nervous. The quantity or magnitude of the ventricle is diverse, according to the various magnitude of bodies, and gluttony of men. The figure of it is round and somewhat long, like a Bubippo. The stomacke is composed of two proper coats, and one common from the Peristrium, together with veins, sinewes, and arteries; the innermost of its proper coats is membranous, with right fibers, for the attraction of meates, is extended and propagated even to the mouth thereof, whereby it comes to pass that the affections of one part may easily be communicated to the other by sympathy, or connection. This coat hath its original from the membranes of the braine, which accompany the nerves descending from the third and fourth conjugation to the mouth thereof.

And in like sort from other productions descending by the passages of the head, from whence also another reason may be drawn from that, which they commonly bring from the nerves of the first conjugation; why in wounds of the head, the stomacke doth so soon suffer, and be comforted with the braine. The exterior, or outer is more chitnein and thickew, with oblique fibers, to retain and expel. It draws it original from the Peristrium, which as soon as it comes to the gullet, takes unto it certain epithelial fibers. There be nerves sent into the stomacke from the first conjugation of the brain, as shall be shewed, in its proper place. Veines and arteries are spread into it from the Gastrica, the Gastricoplastra, the Coronaries and splenaeces, from the second, third, and fourth distribution of the Vena Pura, and the veins of the stomacke, and the third of the descending artery to the natural parts, as soon as it passeth forth of the midriff.

It is one in number. The greater part of it is situated on the left side between the spleene, the hollow of the liver, and the guts, that attended by the heat of such neighbouring parts, it may more cheerfully perform the concagination of the meate.

Also am I ignorant that Galen hath written, that a great part of the stomacke lies to the left side. But inspection is fell, and reason makes me derogate from Galens authority, for because there is more empty space on the left side, by reason the spleene is less than the liver, it was fit it should lie more on the left side. The more proper conjugation of it is with the gullet and guts, by its two orifices, with the braine on one by its nerves, with the liver and spleene by its veines, with the heart by its arteries; and with all the natural parts by its common membrane.

The temper of the ventricle in men of good habit, is temperate, because it is almost compos'd of the equal mixture of sanguine and spermaticke parts; or according to Galens opinion, it is cold of its selfe, and by the parts compos'd it; and hot by the vicinicity of the bowels. But in some it is hotter, in others colder, according to the divers temper and complexion of diverse bodies. That stomacke is to bee thought well tempered, that powerfully draws downe the meate and drink, and embraces and retains them. To drawe, until by concagination and excitation, they shall be turned into a joyce like creame, which the Greeks call Chylus, and fally, which doth strongly lend from it, and repel the excrements of this first concagation.

The stomacke is knowne to be hotter by this, that it better concodes and digests coarse and hard meates, as beefe, hard egges, and the like, than soft meates salt of digestion, which it corrupts and turns into belchings. For so a young chick, is sooner burnt than well rost at a great fire. The stomacke which is colder, defiues much meates, but is slow in concoding them, especially if they be cold and hard of digestion, which for that cause quickly turne fowre. The action of a well condicioned stomacke, is twofold, one common, another proper. The common is to attend are mixed and digest the meates taken in at the mouth, for the nutrition of it selfe, and

The action twofold.
and the whole body, after the liver hath performed its duties, which before it be done, the ventricle only enjoys the sweet pleasure of the Chylus, and comforts its selfe against the heat and impuritie of the adjacent parts, wherefore it is called the work-house of concoction. Its first action is to attract, retain, and assimilate to it selfe that which is convenient; but to expell whatsoever shall be contrary, either in quantity, or quality, or in the whole substance.

It hath two orifices, one above, which they commonly call the stomacke and heart, the other lower, which is called the Pylorus, or lower mouth of the stomacke. The upper bends to the left side near the backe bone; it is farre more large and capacious than the lower, that to it may more commodiously receive meates half chewed, hard and grosse, which gluttons calle downe with great greedinesse; it hath an exquifite fenfe of feeling, because it is the feate of the appetite, by reason of the nerves encompassing this orifice, with their mutual embracements, whereby it happens that the ventricle in that part is endued with a quick fenfe, that perceiving the want and emptieffe of meate, it may stirre up the creature to feake foode. For albeit nature hath bestowed foure faculties on other parts, yet they are not fentribile of their wants, but are only nourished by the continuall flicking of the veins, as plants by juice drawn from the earth.

This orifice is seated at the fifth Vertebra of the chefit, upon which they say it almoot rests. Yet I had rather say that it lies upon the twelfth Vertebra of the chefit, and the left of the loines; for in this place the gullet perforates the midriff, and makes this upper orifice. The lower orifice bends rather to the right side of the body, under the cavite of the liver. It is farre fatter than the upper, left any thing should passe away before it bee well attenuated and concocted; and it doth that by the phrisme the help or assistance of, as it were a certaine ring, like to the sphincter muscle of the fundament, which some have thought a glandule made by the tranposition of the inner and fleshy membrane of the ventricle into that which is the outer of the guts. I know Columbus laughs at this glandulous ring, but any one that lookes more attentively shall perceive that the Pylorus is glandulous. The stomacke in its lower and inner side, hath many folds and wrinkles, which serve to hold and containe the meates, until they be perfectly concocted. In the ventricle wee obserue parts gibbous and hollow; the hollow is next to the liver and midriff; the gibbous is towards the guts. Now we must note, that the ventricle when it is much resolved or loofed, may slide downe even to the navell neare the bladder, the which wee have obserued in some bodies disaffected after their death.

The third and fourth Figure.

The first figure sheweth the foreside of the stomacke and gullet.
A. sheweth the orifice of the gullet cut from the throat, B. the straight and direct course of the gullet from A. to B. C. how the gullet is above the first racke bone of the chefit, from B. to C. inclineth to the right hand.
D. his inclination to the left hand from C. to D.
E. E. the two glandules called the Almonds.
IB. 3.

of Mans body.

mons, let close to the gullet in the end of the throat, called also Parotidum, Antis, Tenille and Salivares glandula. FF. Another glandulous body in the midst of the gullet, about the fifth rack bone, from which place the gullet gives way to the great artick, somewhat declining to the right side: Vesalius, Lib. 5, Cap. 3, and Columbus Cap. 4, Lib. 9, write, that those Glandules are filled with a certain moisture, with which the gullet is moistened, that the maces may slide downe more easily into the stomacke, as through a slippery passage. No otherwise than the Glandula prafera, filled with a kind of grosse and oily moisture, smooth the passage of the urine, that so it may flow through it, with a more free and leffe troubled course. G. The connection of the gullet with the stomacke, where the upper orifice of the stomacke is fashioned. H. the lower orifice of the stomacke called Pylorus. I. K. the upper part of the stomacke at I. the lower at K. LL. the foreside of the stomacke. P. the gut called Duodenum. T. V. the right and left nerves of the sixth pair encompassing about the gullet and the uppermost left orifice of the stomacke.

The second Figure beneath the backe parts of the Ventricle and Gullet.

A. EE. FF. G. H. P. TV. show the like parts as of the former. From C. to D. the inclination of the stomacke to the left hand. M. N. O. the backe side of the stomacke. M. showeth the prominence of the left side. N. of the right. O. showeth the side or impression, where it resteth upon the rack bones. R. the passage of the bladder of the gall into the R. S. a glandulous body growing under the Duodenum, bearing up the vessels. X. Y. a nerve on the left side, creeping up to the top of the stomacke, and so running out to the liver.

Chap. XV.

Of the Guts.

The Guts the instruments of distribution and expulsiion, are of the same substance and composition with the stomacke, but that the site of the coats of the stomacke is contrarie to those of the guts. For that which is the innermost coat of the stomacke is the outermost of the guts, and so on the contrary. The figure of the guts is round, hollow and capacious, some more, some lees accor¬ ding to the variety of the bodies. But for the quantity of the guts, some are small, some great, more or lees, according to the variety of bodies. But they are fixe in number, for there be three small; the Duodenum, the jejunum, or empty gut, and the Ileum. Three great, the Blind, the Collicie, and the Right gut. All which have had their names for the following reasons; the first, because it is extended the length of twelve fingers, like another stomacke, without any turning, or winding; of which greatness it is found in great bo¬ died men, such as were more frequently to be met withall in Galen's time, than in this time of ours, in which this gut is found no longer than seven, eight, or nine fingers at the most. The cause of this length is, that there may be a free passage to the gate vein, comming out of the liver, as also to the artery and nerve which runne into it. For feeling that this gut may sometimes rise to the top of the liver, it would pooleifie the space under the bladder of the gall (with which it is often tinctured) if it had any revolutions that way, which is the passage for such like vessels. Others give another reason of this figure, which is, that there should bee nothing to hinder the ease and free distribution of the perfectly concoced Chylus to the liver.

The secondis called jejunum, or the empty gut, not because it is absolutely fo, but because it contains little in comparison of the other. There is a triple cause of this emptines, the first the multitude of the meserack veines and arteryes which are about it, whereupon there is a greater and quicker distribution of the Chylus. The second is the vicinity or neighbourhhood of the liver strongly drawing the Chylus contained in it; the third is the flowing downe of the cholericke humour from the bladder of
of the Gall into it, which ever and anon by its acrimony cleanseth away the filth, and by continual flowing lollis and it to expulsion. The third is called Hecum because it lyeth betwixt the flanke or flanks, it differeth nothing from the rest in substance and magnitude, but in this one thing, that there is more matter contained in it than in the rest, by reason of the puncity of the vessels terminated in it, that it is no marvel that there can be no exact demonstration made of them. The fourth is called Cacus or the Blind, because it hath but one passage to send out and receive in the matter. This gut hath a long and strict production, which according to the opinion of some (though altogether erroneous) often falls down into the Scrotum in the rupture, or relaxation of the Rim of the Belly; for that production in the lower belly strongly flieteth to the Peritonum or Rim, which hindereth such falling down. But Cacus seems by such a blind gut to have meant this long and narrow production, and certainly so thinketh the common form of Anatomists, but here Sylvius justly reprehended Cacus. Wherefore Sylvius that he might free Cacus of this fault, would have us by the blind gut to understand the beginning of the collicke gut. The fist is called Colon (or collicke gut) because it is greater and more capacious than the rest. The fifth and last, the Right gut, by reason of the rightness or strictness of the passage. This in beasts especially, hath a certain firmness in it to make the passage slippery, and left the gut should be exsudated in the passage, by the sharpeness of hard and acrid excrements.

The site of these guts is thus. The upon the backbone bends to the right hand; the Jejunum poffeth a great part of the upper umbilical region, diffieth it selfe into both sides with windings, like to thefe of the gut Hecum, even to the flanks. The gut Ileum is situat at the lower part of the umbilical region, going with many turnings and windings, even to the hollowneses of the hollow-bone above the bladder and side parts of the Hypogastrum, which they call the flanks.

The Blind bends to the right hand, a little below the kidney, above the firft and fourth vertebra of the loines. The Colon or Collicke gut is crooked and bent, in the forme of a Scythian bow, filling all the space from the blind gut, below the right kidney, even to the hollownes of the liver, and then it goes by the gibbes part of the stomacke above the small guts, even to the collo wronfely of the spleene; from whence semi flowing under the left kidney, with some turnings, it is terminated upon the of the loines.

By all which turnings and windings of the collicke gut, it is easie to distinguish the place of the stone of the kidneies, which remaineth fiar in one certaine place, from the collicke wandering through thefe crooked passages we mentioned. The right gut tendeth with an oblique fire towards the left hand, upon the holy bone even to the very fundament. They have all one and a common connexion, for they are all mutually joined together by their coats, because they are but one way from the gullet even to the fundament, but they are joyned to the principal parts by their nerves, veins, and arteries.

But a more proper connexion is that, where the Duodenum on the upper part of it, is joyned with the Pylorus; but on the lower part, to the Jejunum, and the parts lying under it, by the coast of the Peritonum. The Ileum, or empiric gut, is joyned to the Duodenum and Hecum. The Hecum with the empiric and blind guts. The Blind with the Colon and Colon, and with the right side of the backe bone where it is tied more strictly. The Colon with the blind and right guts, and in his middle part, with the kidneies and the gibbes part of the stomacke; whereby it comes to passe, that being disstended with wind in the collicke, it overturns and presses the stomacke, and so causeth vomiting.

Lastly, the right gut is annexed with the collicke gut and fundament. At the end whereof there is a muscle fatteneth, of figure round and circular called the Spinhin, arising from the lower Vertebra's of the holy bone and rump, by the benefit of which as of a dore or gate, the excrements are restrained at our will, lest man borne for all honest actions, without all flame, in every time and place, should be forced every where to ease his belly. For such as have lost the benefit of this muscle by the palsy, have their excrements goe from them against their wills. There is a body situated at
at the end of the right gut, of a middle substance between the skinne and flesh, as it were arising from the mixture of them both, like the extremities of the lippe, of the same use with the Sphincter, but that it is not altogether so powerfull. But there are also certain veins situate about it called the Hemorrhoidal, of which we will speake in their place.

Besides, there are two other muscles that descend to the end of this gut, being broad and membraneous on each side, one arising from the side and inner parts of the share and hippe-bones, which inflected above the Sphincter pull up the fundament falling down, wherefore they are called Levatores Ant., or the lifters up of the fundament. Wherefore when as either they are too weake, or resolved, or the fundament oppressed with the weight of flegmatieke, salt, cholericke and sharpe humors, the gut is scarce restored into its place, that there is need of the helpe of the fingers for that purpose.

The guts follow the temper of the flomacke. Their action is the distribution of the Chylius by the metearte veines (which of dutie belongs to the three small guts) and the receiving the excrements of the Chylius, and retention of them, till a fit time of expulsion, which belongs to the third quarter. Besides, these small guts finishe the worke of concoction, begus in the flomacke, although they be not altogether made for that use. But nature is often accustomed to abuse the parts of the body for some better use.

**The fifth figure of the lower belly.**

A. The breast blade, Cartilage Eisenformis.

BB. The Rim, with the midriffe and broken ribs bent outwards.

CC. the gibbous part of the liver.

D. a ligament tying the liver to the midriffe.

E. part of the umbilical vein.

F. the flomack full of meate.

G. a part of the spleene.

H. the blind gut of the late writers, for the Ancients tooke the toppe of the colon for it.

I. the beginning of the great or thick guts.

L. and to K. sheweth the paffages of the collique gut from the right kidney to the liver. And so the collique and the stone on this side are in one place, and therefore hardly distinguisht.

K. to L. the same collique gut lieth under the whole bottom of the flomacke, which is the reason that those which are troubled with the collique eafe so much.

L. to M. The paffage of the Colon from the spleene to the share bone, by the left kidney, a way, which maketh the paine of the stone and the Collique on the left side very hard to distinguisht.

N. The Colon ending in the right gut. O. The beginning of the right gut unto the bladder. P. Q. The junction or fallen side of the Colon at P. and his Chambers or Cells at Q. R. S. T. The left guts especially lying under the Navil.

1. a. The two umbilical arteries.

Of the Anatomie

Chapter XV.

Of the Mefentery.

The substance, magnitude, figure, composition.

The Mefentery follows the Guts, being partly of a fatty and partly of a fpermatice substance. The greatness of it is apparent enough, though in some it be bigger, and in some lesser according to the greatness of the body. It is of a round figure and not very thick. It is composed of a double coat arising from the beginning and root of the peritoneum. In the midst thereof it admits nerves from the Collat of the First conjugation, veins from the Vena Porta or Gate veins, Arteries from the descendant artery, over and besides a great quantity of fat and many glandulous bodies, to prop up the division of the vessels spread over it, as also to moisten their substance. It is in number one, situate in the middle of the guts, from whence it takes its name. Yet some divide it into two parts, to wit, into the Pentereum, that is, the portion interwoven with the small guts, and into the Mefocolon which is joined with the Great. It hath connexion by its vessels with the principal parts, by its whole substance with the guts, and in some part with the kidneys, from whole region it seems to take its coats.

The temperament, the action and use of it, to bind and hold together the guts, each in its place, least they should rashly be folded together; and by the Mefentrikc veins (which they term the hands of the Liver) carry the Chylus to the liver.

In which you must note, that all the Mefentrikc veins come from the Liver, as we understand by the distillation of bodies, although some have affirmed, that these come veins serving for the nourishment of the guts, no ways appertaining to the Liver, but which end in certaine Glandulous bodies, dispersed through the Mefentery, of whose use we will treat hereafter.

Chapter XVII.

Of the Glandules in general, and of the Pancreas, or sweet bread.

Glandule is a simple part of the body; sometimes of a spongy and soft substance, sometimes of a dense and hard. Of the soft Glandules are the Tomilla or Almonds, like in substance to blanched Almonds; the Thymus, Pancreas, Testicles, Prostata. But the dense and hard are the Parotides and others like. The Glandules differ amongst themselves in quantity and figure, for some are greater than other some, and some are round and others plaine, as the Thymus and Pancreas.

Others
Others are compounded of veins, nerves, arteries, and their proper flesh, as the almonds of the ears, the milkie glandules in the breasts and the testicles. Others want nerves, at least which may be seen, as the pudenda, the axillaries, or those under the armholes and others. The number of glandules is uncertain, by reason of the infinite multitude and variety of sporting nature. You shall find them always in those places, where the great divisions of vessels are made; as in the middle ventricule of the brain, in the upper part of the chest, in the mesentery and other like places.

Although otherwise be seated in such places, as nature thinkes needfull to generate and carry forth of them a profitable humor to the creature; as the almonds at the rootes of the tongue, the kernels in the dogs, the spermatick vessels in the ferumum and at the sides of the womb; or where nature hath decreed to make emunctories for the principal parts, as behind the ears, under the armholes, and in the groines. The connexion of glandules is not only with the vessels of the parts concouring to their composition, but also with those, whose division they keep and preferve. They are of a cold temper, wherefore Phisitions say the blood receiveth a change at the same, and so does in the dogs, when it takes upon it the forme of milk. But of these some have action, as the almonds, which poure our spittle usefull for the whole mouth, the dogs milkie, the testicles seede, others use only as those which are made to preferve, understop and fill up the divisions of the vessels. Besides this we have spoken of glandules in general, we must know that the pancreas is a glandulous and fleshy-like body, as that which hath every where the shape and resemblence of flesh. It is situate at the flat end of the liver, under the Dunderum with which it hath great connexion, and under the gate-veine, to serve as a bulwark both to it and the divisions thereof, whilst it fills up the empty spaces, between the vessels themselves, and so hindereth, that they be not plucked asunder, nor hurt by any violent motion, as a fall, or the like.

Of the Liver.

Aving gone thus farre, order of dissection now requires, that we should treat of the distribution of the gate veine, but because it cannot well be understood unless the nature of the liver from whence it ariseth, be well knowne, therefore putting it off to a more fit place, we will now speake of the Liver. Wherefore the liver (according to Galens opinion, lib. de form. fature) is the first of all the parts of the body, which is finished in conformation, it is the floppie and Author of the blood, and the originall of the veins; the substance of it, is like the concrete made of the blood, the quantity of it is diversel, not onely in bodies of different, but also of the same species; as in men amongsth themselves, of whom one will be glutomonous and fearefull, another bold, and temperate, or sober; for hee shall have a greater liver than this, because it must receive and concoct a greater quantity of chylus, yet the liver is great in all men, because they have need of a great quantitate of blood for the repairing of so many spirits & the substanctieke moisture, which are resolvd and dischargd in every moment by action and contemplation. But there may be a twofold reason given, why such as are fearefull have a larger liver. The first, is because in those the vital facultie (in which the heart of courage and anger refides) which is in the heart, is weak, and therefore the defect of it must be supplied by the strength of the natural faculties. For thus nature is accustomd to compenche that which is wanting in one part, by the increas and accession of another. The other reason is, because cold men have a great appetite, for by Galens opinion in arte parvis, coldnesse increases the appetitie, by which it comes to passe that they have a greater quantitate of chylus, by which plessey the liver is nourished, and growses larger. Some beasts, as Dogges, and swine, have the liver divided into five or more Lobes, but a man hath but one Lobe, or two, or three, at the most, and these not so much differincked, as which 처_Clears the upper and hollow region of the ventricule, with embracing to help forward the worke of concoction, therefore the liver is almost content with one Lobe, although it is always rent with a small division, that the umbilical veins passing into the roots and substance of it, may have a free passage; but also oftentimes there is as it were a certaine small lobe of the liver, laid under that umbilical vein, as a cushion.
The figure. The figure of the liver is gibbous; rising up and smooth towards the Midriff; towards the stomack is the simus or hollow side of it somewhat unequall, and rough by reason of the distance of the Lobes, the original of the hollow veine, and the side of the bladder of the Gall.

The composition. The composition of the liver is of veins, nerves, artreyes, the coat and proper substance thereof which we call the groffe and concrete blood, or Parenchyma. Veines and artreyes come to it from the navell, but nerves immediately from thee which are diffused over the stomack according to Hippocrates; yet they penetrate not very deep into its substance, for it seems not to stand in need of such exacteness, but they are distributed upon the coat and surface thereof, because this part made for distribution over the whole body, keeps to it afe no acid or maligne humor, for the perception of which it should need a nerve, although the coat investing it, sends many nervous fibers into its substance, as is apparent by the taking away of the coat from a boiled liver; we must think the same of the other entrais. The coat of the liver is from the Peritoneum, waxing small from the umbilical vein, when it divides into the generation of the gate and hollow veines, as is observed by Galen, lib. de format. Fatus. The liver is only one, situate in the greater part on the right side, but with the lesser part on the left, quite contrary to the stomacke. Its chief connexion is with the stomacke, and guts, by the veins and membranes of the Peritoneum, by the howlow vein and artery, with the heart, by the nerve with the brain, and by the same ligatur with all the parts of the whole body. It is of a hot and moist temper, and such as have it more hot, have large veines and hot blood; but such as have it cold, have small veines, and a disclosed hew. The Action of the Liver is the conversion of the chyamus into blood, the work of the second composition. For although the Chyamus entering into the mesentery veines, receive some resemblance of blood, yet it acquires not the forme and perfection of blood, before it be elaborated, and fully converted in the liver. It is bound and tied with three strong ligaments, two on the sides in the midst of the bastard ribs, to bear up its sides, and the third more high and strong, descending from the breast-blade, to sustain its proper part, which with its weight would press the lower office of the stomacke, and to cause a falling or drawing downe of the sternon and collar bone. And thus much may fuzzice for its proper ligaments, for we before mentioned its common, the veins, artreyes, nerves, and coat of the Peritoneum, by which it is knit to the loines, and other natural passids. But wee must note, that besides these three proper ligaments, the liver is also bound with others to the bastard ribs, as Sylvius observes in his Anatomical observations, and Holleriun in his Practicall observations.

chap. xix.

Of the bladder of the Gall.

The substance, greatness, and figure thereof. The substance of the Gall, is of a double coat, one proper, consisting of three sorts of fibers, the other from the peritoneum. It hath a vein from the Porta or gate veine, and an artrey from that which is diffusse into the liver, and a nerve from the fixed conjuration. It is bot black, and that hid on the right side under the greater lobe of the liver, it is knit with the touching of its own body, and of the passagges and channels made for the performance of its actions with the liver, and in like manner with the Biletriun, and not feldeome with the stomacke also, by another passage, & to continue to all the parts by its veins, nerves, artreyes, and common coat. It is of a cold temper, as every nervous part is.

The action of it. The action of it is to separate from the liver the cholericke humor, and that excrementious, but yet natural by the help of the right fibers, for the purifying of the blood, and by the oblique fibers, so long to keep it being drawne, until it begin to become troublesome in quantity, quality, or its whole substance, and then by the tranverse fibers, to put it downe into the Biletriun to provoke the expulsive facultie of the guts. I know Fallopin denies the texture of so many fibers, to be the minifier of such action to the gall. But Pelsulm seems sufficiently to have answered
The bladder of the gall hath divers channels, for coming with a narrow neck, even to the beginning of the gate vein, it is divided into two passages, the one whereof suffering no division is carried into the Duodenum, unless that in some it send another branch into the bottom of the stomack, as is observed by Galen; which men have a miserable and wretched life, being subject to cholericke vomitings, especially when their stomackes are empty, with great pains of their stomack and head, as is also observed by Galen Cap. 74. Artis Med. The other comming out of the body of the liver devises it selfe into two or three passages, againe entering the substance of the liver, is divided with infinite branches, accompanying so many branches of the gate vein through the substance of the liver, that so the blood unlesse it be most elaborate and pure, may not rife into the hollow veine, all which things Diffention doth manifestly teach.

The sixth Figure of the bladder of the Gall.

M. The Pylorus joyned to the Duodenum.

N. the Duodenum joyned to the Pylorus.

P. shewes the bottome of the bladder of the gall.

QO. the holes of the bladder of gall diuerfed through the liver, betwixt the routes of the hollow and gate veins.

R. the route of the gate veine in the liver.

S. the route of the hollow veine in the liver.

The concourse or meeting of the passages of choller into one branch, & the necke of the bladder into which the passage is inserted. & the passage of the gall into the Duodenum d, the Duodenum opened, to manifest the insertion of the porus biliaris, e. an arterie going to the hollow part of the liver, and the bladder of the gall. f. a small nerve belonging to the liver and the bladder of gall, from the ribbe branch of the sixt paire.

C H A P. X X .

Of the Spleene or Milt.

Because we cannot well shew the distribution of the gate veine, unlesse the spleene be first taken away, and removed from its fete; therefore before we go any further, I have thought good to treat of the spleene. Therefore the spleene is of a soft, rare, and spongious substance (whereby it might more easely receive and drink up the dregges of the blood from the liver) and of a fleithe more blacke than the liver. For it reembles the colour of its muddy blood, from which it is generated. It is of an indifferente greeneble, but bigger in forme, than in otherforme, according to the diverse temper and complexion of men. It hath, as it were, a triangular figure, gibbous on that part, it stickes to the ribbes and midriffe, but hollow on that part next the stomacke. It is compos'd of a coate, the proper fleithe, a veine, artery, and nerve. The membrane comes from the peritoneum, the proper fleithe from the faces or dregges of blood, or rather of the natural melancholy humor, with which it is nourisht. The fourth branch of the vena porta, or gate veine, lends it a veine, the first branch of the great descendent artery presently after the first entrance without the Midriffe, lends it an arterie. But it receives a nerve from the left coisall, from the first conjugation on the inner part, by the routes of the ribs; & we may manifestly see this nerve, not only dispersing it selfe through the coate of the liver, but also penetrating with its veffels the proper fleithe thereof, after the same manner, as we see it is in the heart and lungs. It is one in number, situate on the left side, between the stomacke and the bastard ribs, or rather the midriffe which descends to their routes. For it oft times cleaves to the midriffe on its gibbous part, by a coate from the peritoneum, as also on the hollow part to the stomacke, both by certaine veines which lends it into the ventricile, as also by the kall. If hath connection, either primarily, or secondarily, with all the parts of the body, by these veffels.
It is of a cold and dry temper; the action and use of it is to separate the melancholic humor, which being severe and drost, may be attenuated by the force of many arteries dispersed through its substance. For by their continual motion and native heat, which they contain in full force with them from the heart, that gross bloood puts off its groffenesse, which the spleenic humor, that being feculent and drost, may be attenuated by the force of many arteries dispersed through its substance. For by their continuall motion, and native heat, which they carry with them from the heart, that grostbloud puts off its grostnesse, which the spleen sends away by passages for that purpose, retaining the subtler portion for its nourishment. The passages by which it purges it selfe from the groffenesse of the melancholy blood, are a veine ascending from it into the stomacke to stirre up the appetite by its founenesse, and strengthen the substance thereof by its affiruation; and also another veine, which some times from the spleenic branch, some times from the gate veine, plainly under its orifice, descends to the fundament, there to make the Hamorrhoidal veins.

The substance and figure.

Composition, Number and site.

Temper and Action.

Division thereof into 6 branches, of which 4 simple, 2 compound.

Cyftica gemellae.

Cyftica.

Gastroepiploica.

Deftinatia.

Two compound.

Ramus splenicus cutanating forth.

Ceruelus.

Hamorrhoidal, motas.
Sylvis writes that the Hemorrhoidal branch defends from the mesentericke, and truly we have sometimes observed it to have beene so. Yet it is more fituate to reason, that it should defend from the spleene, not only for that we have seen with our eyes that it is so, but also because it is appointed by nature for the evacuation of the excrenientitious melancholike humor. But this same spleenicke branch out of the middle almoft of its upper part produces the third branch going to the gibbous part of the stomacke, and the kallys they term it the greater, middle and left Gastroplias. But on the lower part towards the spleene it produces the simple Epiplois, or kall-veine, which it distriues through the left side of the kall. Moreover from its upper part, which touches the liver, it lends forth a short branch called vas breue, or venesumo, to the upper office of the ventricile for stirring up the appetite.

Wee have oftentimes and almost always observed, that this veine vesseI, which Galien calls vas breve, comes from the very body of the spleene, and is terminated in the midst of the stomacke on the left side, but never penetra both the stomacke thereof. Wherefore it is somewhat difficult to find, how the melancholy yauce can that way bepowdered, or flent into the capacitie of the stomacke. Now the spleenicke branch, when it hath produced out of it those five forementioned branches, is wafted and dispersed into the fubftance and body of the spleene.

Then followeth another compound branch of the vena paine, called the mesentericke, which is divided into three parts. The firft and least whereof goes to the blind gitem, and to the right and middle part of the collicke-gut, divided into an infinite multitude of other branches. The second and middle is wafted in the ileum, as the third and greater in the Ileum or empty gut. It is called Mesentericke because it is diffus'd over all the Mesentery, as the spleenicke is in the spleene. And thus much we have to say of the division of the veins, the which if at any time thou shalt find to be otherwise, than I have set downe, you must not wonder at it; for you shall scarce finde it the fame in two bodies, by reason of the infinite varietie of particular bodies, which (as the Philosophers say) have each their owne, or peculiar gifts. Our judgement is the fame of other divisions of the vesseS. Yet wee have seen downe that which wee have most frequently observed.

Chap. XXI.

Of the originaI of the Artery, and the division of the branch, descending to the natural parts.

Of these things being thus finishe^d and consider'd, the guts should be pulled away, but seeing that if we should do so, we should disturb and loose the division of the artery descending to the natural parts, therefore I have thought it better to handle the division thereof, before the guts be plucke^ away. Therefore we must suppose, according to Galens opinion, that as all the veines come from the liver, so all arteries proceed from the heart. This prettyly at the beginning is divided into two branches, the greater whereof descends downwards to the natural parts upon the spine of the backe, taking its beginning at the fifth vertebra thereof, from whence it goes into the following arteries. The first called the intercostall, runnes amongst the intercostall muscles, and the distances of the ribs, and spinall marrow, through the perforations of the nerves on the right and left hand from the fifth true, even to the left of the bastard ribs. This in going this progresse makes 7 little branchings distributed after the forementioned manner, and going forth of the truncke of the descendant over against each of the intercostal Muscles.

The second being parted into two goes on each side to the midriff, whence it may be called, or expressed by the name of the Diaphragmatis, or forenica (c) it the midriff artery. The third being of a large proportion, arisit from the upper part of the artery previousty after it hath passed the midriff, is divided into two notable branches, whereof one goes to the stomacke, spleene, kall, to the hollow part of the liver.
liver and the gall, the other is sent forth to the mesentery and guts after the same manner, as wee said of the meferalcke veins, wherefore it is called the Collica, or stomacal arterie. But wee must note, all their mouthes penetrate even to the innermost coat of the guts, that by that means they may the better and more easily attract the Clyclus contained in them.

The fourth is carried to the reins, where it is named the reinsall or emulgent, because it suckes fit matter from the whole masse of blood.

The fifth is sent to the testicles with the preparing spermaticke veins, whereas also it is named the spermatickederie, which arises on the right side, from the very trunk of the descendent artery, that it may associate the spermatick vein of the same side, they runne one above another beneath the hollow vein, wherefore wee must have a great care whilst wee labour to lay it open, that wee doe not hurt and break it.

The seventh Figure of the lower belly.

A, A. the midriffe turned backe with the ribs and the peristemum.
B, B. the cave or hollow part of the liver, for the liver is lifted up that the hollow part of it may bee better seene.
C. the left ligament of the liver.
D. the umbilical vein.
E. the hollow masse in the liver, which giveth way to the stomacke.
F. the left orifice of the stomacke.
G. certaine knots, or knoobs, and impreffions in the hollow part of the liver.
H. the bladder of gall.
I. the galle-veine, cut off, and branches which goe to the bladder of gall.
K. a nerve of the liver comming from the stomachical nerve.
L. an artery common to the liver and bladder of gall.
M. a nerve common also to them both, comming from the right espal nerve of the ribs.
N. the passage of the gall to the guts cut off.
O, O. the hollow of the fore parts of the spleene.
P. they line where the vessels of the spleene are implanted. Q. the trunk of the hollow veine. R. the trunke of the great arterie. S. the Collica arterie cut off. T. V. the kidnecies yet wrapped in their membrane. X. Y. the fatty veins called vena adiposa. a, & the emulgent veins with the arteries under them. ss. ad. the ureter from either kidney to the bladder. c, of the spermatick veins to the testicles, the right from the hollow veine, the left from the emulgent. g, g. veins comming from the spermatical to the peristemum. h, k. the spermatical arteries. l. the lower melenterical arterie. L. the ascending of the great arterie above the hollow veine, and the division of it, and the hollow veine into two trunks. m. the arterie of the loines called lambaris. n. the holy arterie called arter. o. a part of the right gut, p. the bladder of urine. * the connexion of the bladder with the peristemum. q. a part of the vessels which leade the seed from the testicles, is here reflected. r. s. the fixed liver, or cod, that is, the skinne that infefts the yard and testicles. t. the bladder pannicle or membrane which is under the cod. w. the coate which is proper to the testicles with his vessels. w. a part of the yard excoriated or flayed, and hanging downe.
The sixth going from the fore and upper part of the defendant arterie, depending with the Hemorroidall veins to the fundament, presently from his beginning, lading forth certaine branches alongift the collicks gut, which by anastomosis are united with other branches of the Colicauti arteries, for whatsoever shall looke more attentively, he shall often obserue that veins are fo united amongst themselves, and alfo arteries, and sometimes also the veines with the arteries. For an anastomosis is a communion and communicating of the veins amongst themselves, by the application of their mouths, that by mutual supplies they may easie each others defects, But they call this the lower meseraic arterie.

The seventh proceeding from the transke with so many branches as there be verte-Lumbars, bra's in the loines, goes to the loines and the parts belonging to them, that is, the spinal narrow of that part, and other parts encompassing these Peritona, whereupon it is filled the Lumbar or Loine Artery.

The eight maketh the Iliacke arteries, until such time as it departes from the Peritonam Hixea, where the Crucall Arteries take their originall. This Iliacke Artery sends many di-vacriations towards the Holy bone where it takes its beginning, and to the places lying near the Holy bone, which because they run the same course as the Iliacke veins, for brevities sake we will let passe further mention of them, till we come to treat of the Iliacke veins.

### Chap. XXIII.

#### Of the distribution of the Nerves to the natural parts.

The original of the nerves which are cut to the natural parts.

T remains, that before the bowels be taken away, we shew the nerves sent to the enterales and natural parts, that as wise and provident men we may seem to have omitted nothing. First we must know that these nerves are of the first conjugation, which descend as well to the tomache all alongist the Gullet and the sides thereof, as thofe at the roots of the ribs on both sides within. But when they are pasted through the Midriife, thofe which are distributed amongst the natural parts follow the turnings of the veins and arteryes, but specialy of the arteryes. Wherefore if you have a mind to follow this distribution of the nerves, you must chiefly looke for it in thofe places, in which the arterie is distributed amongst the guts above the loynes.

These nerves are but small, because the parts serving for nutrition, needed none but little nerves, for the performance of the third duty of the nerves, which is in the discerning and knowing of what is troublesome to them. For unleffe they had this sense, there is nothing would hinder, but these bowels necessary for life, being necessitated with some hurtfull thing, the creature should presently fall downe dead; but we have this benefit by this sense, that as soone as any thing troubles and velificates the bowels, we being admonished thereof may looke for helpe in time. And besides if they were destitute of this sense, they might be gnawne, ulcerated and putrified by the raging acrimony of the excrements falling into and flaying in them, but now (by means hereof) as soon as they find themselves pricked, or plucked, presently by the expulsive faculty they endeavour to expell that which is troublesome, and so free themselves of present and future dangers.
Of the Anatomie

Lib. 3.

which it bath from the Peritoneum. This being done, you must in like manner bind the
trunk of the gate vein as near the original as you can, that to all his branches
being in like manner tied there may be no fear of effusion of blood; you must doe
the like with the Celiacke Artery at the left kidney, and in the lower Mesenterick,
which defends to the Right gut with the Hemorrhoidal veins. This being done,
pull away the guts even to the Ductus, which being in like manner tied in two places,
which ought to be below the insertion of the Perni Convexus or passage of the Gall,
that you may shew the oblique insertion thereof into that gut, for the obliquity of
its insertion is worth observation, as that which is the cause that the Gall cannot flow
backe into its bladder, by the compreßion of this Gut from below upwards. Then all
these windings of the Guts may be taken away from the body.

Chap. XXV.

The Original and distribution of the descendent Hollow veins.

Because the rest of the natural parts do almost all depend upon the descen-
dent Hollow vein, therefore before we goe any further, we will shew its
original and distribution. We said before that all veins proceeded from
the Liver, but yet in divers places, For the gate vein goes out of the hollow
part, and the Hollow vein out of the Gibbous part of the liver, which going forth like
the body of a tree, is divided into two great branches, the leffer of which goes to the
vital and animal parts, and the extremities of these parts, as we shall shew in their
place. The greater descending from the backe part of the Liver above the Vertebræ
of the loines to the parts beneath, goes in the manner following, The first division
thereof is to the membranes of the reins, which come from the Peritoneum.
Wherefore there it produces the Vena adivs, of fatty veins, so called because they
bring forth a great quantity of fat in those places; Of these fatty veins, there is a
diverse original, for the right doth oftentimes arise from the right emulgent because
it's higher; but the leffe comes from the very trunk of the hollow vein, because
the emulgent on that side is lower, and you shall scarce see it happen otherwise.

The second being the Kidney or Emulgent veins, go to the Reines, Which at
their entrance, or a little before, is divided into two branches, like as the Artery is,
the one higher, the other lower, and these againe into many other through the sub-
fstance of the Kidneys, as you may learn better by ocular inspection, than by book.
They are thick and broad, that the serous humor may without impediment have free
passage. Their original is different, for the right Emulgent, often times comes
forth of the Hollow vein somewhat higher than the left; that seeing their office and
duty is to purge the malle of blood from the cholericke and serous humor, that if
any part thereof slide by the one, it may not escape, but fall as it were into the
other. Which certainly would not have happened if they had bin placed the one just
opposite to the other. For the Serous or wheyish humor would have stayed as equally
balanced or poisèd, by reason of the contrariness of the action and tradition, or draw-
ing thereof. But we must remember that in dissection of bodies, I have oft times found
in such as have been troubled with the stone, seven Emulgent veins and so many
arteries, soure from the left side coming from diverse places, of which the left came
from the Iliace; three from the right hand likewise in diverse places.

The third division is called the spermaricck or seed vein, it goes to the Testicles;
the original thereof is thus, that the right aries on the fore part of the trunk of the
hollow vein, but the left most commonly from the emulgent. Besides you shall some-
times finde that these have companions with them, to the right emulgent; but to the
left another from the hollow vein, in some but on one side, in others on both. But
also I have sometimes oberserved the left emulgent to proceed from the spermaricck
or seed vein.

The forth because it goest to the loynes, is called Lumbaris; which in his original
and infection is wholly like the Artery of the loines. But there are a Lumbares or Loin
veines
of Man's body.

veines on each side, that is, one in each of the 4 spaces of the 7 vertebras of the loines.

The first division makes the iliacs, until passing through the Peritoneum, they take the name of Crural veines; these are first divided into the Musculose, so called, because they go to the oblique ascendent and transverse muscles, and to the Peritoneum. Sometimes they have their original from the end of the Truncus. And then the same

Iliaca are divided into the Sacra, or holy, which go to the spinal marrow of the Holy bone, through those holes, by which the nerves generated of this marrow, have their passage.

Thirdly the Iliaca are divided into the Hypogastric so called, because they are distributed to all the parts of the Hypogastrum, or lower part of the lower belly, as to the right Gut, the muscles thereof, the muscosus skin, in which place they often make the external Hamorrhoidal, ordained for the purging of such blood as offends in quantity, as those offends [that is, the inward Hamorrhoidal] which descends to the right Gut from the Gate veine by the spleenick branch, serves for cleansing of that which offends in quality) to the bladder and the necke thereof even to the end of the yard, to the womb, and even to the neck of the womb and uterine parts of the privities, from whence it is likely, the courtes break forth in women with child and virgins. But this same veine also lends a portion of it without the Epigastrium by that perforation which is common to theshare and haunch bones, which strengthened by meeting of the other internall Crural vein descends even to the Hamme, but in the mean time by the way it is communicated to the muscles of the thigh called Obturatoris and other parts within. Fourthly, the Iliaca produce the Epigastria which on both sides from below ascend according to the length of the right muscles, spreading also by the way some branches to the oblique and transverse muscles and also to the Peritoneum. Fifthly, these Iliaca produce the Pudenda or veins of the privities pudenda, because they go in women to their privities, and into men to the Gods, where they enter that fleety coat filled with veins, and goe to the skin of the yeard, they take there beginning under the Hypogastrica.

Chap. XXVI.

Of the Kidneyes or Reines.

Now follow the Kidneyes, which that they may bee more easily seen, (after that you have diligently oberserved their situation) you shall dis- dispose of them far, if they have any about them, as also of the membrane they have from the Peritoneum. First you shall flew all their conditions, beginning at their substance.

The substance of the Kidneyes is flethy, dense and solid, least they should be hurt by the sharpnes of the Peritoneum, their magnitude is large enough, as you may see. Their figure is somewhat long and round almost resembling a semicircle, and they are lightly flatted above and below. They are partly hollow and partly gibbous, the hollow lyes next the hollow veine, and on this side they receive the emulgent veines and Arteryes, and send forth the ureters, there gibbous part lies towards the loines. They are composited of a coat coming from the Peritoneum, their owne peculiar flesh, with the effusion of blood about the proper veiels (as happens also in other ens), generates a small nerve, which springing from the Coftall of the first conjugation is diffused to each Kidney on his side into the coat of the kidney it selfe, although others thinke it alwayes accompanies the veine and arterye.

But Fallopius that most diligent Author of Anatomie hath observed, that this nerve is not oftentimes divaricated into the coat of the kidneyes, but also pierces into their substance. They are two in number that if the one of them should by chance be hurt, the other might suply those necessites of nature, for which the Kidneys are made. They lie upon the loines at the sides of the great veiels, on which they depend by their proper veines and arterye and they stick to them, as it were by a certaine second coat, left that they might be shaken by any violent motions. Where
fore we may say that the Kidneys have two coats, one proper adhering to their substance, the other as it were coming from the Peritomeum, that part they stick to. The right Kidney is almost always the higher, for those reasons I gave, speaking of the originall of the Emulgent vessels. Columbus seems to thinke the contrary, but such like controversyes may be quickly decided by the Eye. They have connection with the principal vessels by the veins, nerves and arteries, by the coats with the loines and the other parts of the lower belly, but especially with the bladder by the ureters. They are of a hot and moist temper, as all fibby parts are. Their action is to cleanse the Musse of the blood from the greater part of the serous and cholerick humor. I said the greater part, because it is needfull that some portion thereof should go with the alimentary blood to the solid parts, to serve in need of a vehicle left otherwise it should be too thick.

Besides you must note that in each kidney there is a cavitye bounded by a certaine membrane, encompassed by the division of the emulgent veins and arteries, through which the urine is strained partly by the expulsive facultie of the kidneys, partly by the attrative of the ureters, which run through the substance of the kidneys on the hollow side, no otherwise than the Fossa chologus through the body of the Liver.

The ninth and tenth figure of the vessels of seed and urine.

The first figure sheweth the forefide, the second the hinder-side.

Fig. XI.

The forepart of the right kidney.

The back part of the left kidney.

The two cavities wherin the emulgent vessels are inserted.

The trunk of the hollow veine.

The trunk of the great artery.

The emulgent veins and artery.

The right fatty veine.

The left fatty veine.

The Celiacall artery.

The ureters.

The right spermaticke veine which arise near the foresaid.

The bladder of urine, the first figure sheweth it open, the second sheweth the backe parts.

The small bladder of the seed opened.

The two bodyes which make the substance of the yard.

The vessels which goe unto the yard and
and necke of the bladder. The passage which is common to the urine and feed, cut open. The implantation of the ureters into the bladder.

Chap. XXVII.

Of the spermatike Vessells.

Now we should have spoken of the ureters, because as wee said before, they are passages derived from the Kidneyes to carry the urine to the bladder. But because they cannot be distinguished and shewed unless by the corrupting and vitiating the site of the spermatike vessells; therefore I have thought it better to pass to the explication of all the spermatike parts.

And first of all you must gently separate them, (that so the declaration of them may be more easie & manyely, and that from the coat which comes from the Peritonaeum, and the fat which invests them even to the spine-bone, having diligently considered their site before you separate them.) Then you shall teach that the substance of these vessels, is like to that of the veins and arteries. Their quantity is small in thickness, but of an indifferent length, by reason of the distance of their original from the Testicles. They are longer in men than in women, because these have their Testicles hanging without their belly, but women have them lying hid within their belly.

Their figure and composition is wholly like the figure and composition of the veins and arteries, except in this one thing, that from that place where they goe forth of the great capacity of the Peritonaeum, they are turned into many intricate windings, like crooked sowne veins, even to the Testicles. That the spermatike matter in that one tract, which yet is no other than blood, may be prepared to concord, or rather be turned into feed in those vessels, by the irradiation of the faculty of the Testicles. These vessels are fixe in number, four preparing, and two ejaculatory, of which we will speak hereafter. Therefore on each side there be two preparing vessels, that is, a vein and an artery, arising as we told you when we spoke of the distribution of the hollow, veins. They are inserted into the Testicles through that coat which some call Epididymis, others Dartos. Their site is oblique above the loines and sides.

Chap. XXVIII.

Of the Testicles or Stones.

The Testicles are of a Glandulous, white, soft and loose substance, that so they may the more easily receive the spermatike matter; their magnitude and figure equal, and resemble a small pullet eggs somewhat flattened; Their compoiture is of veins, arteries, coats and their proper flesh. Their veins and arteries proceed from the spermatike vessels, their nerves from the sixth conjugation, by the roots of the ribbes and out of the holy bone. They are wrapped in foure coats, two whereof are common, and two proper. The common are the Scrotum or skin of the Gods, proceeding from the true skin, and the fleshly coat, which consists of the fleshly Pamicle, in that place receiving a great number of vessels, through which occasion it is called. The proper coats are first the Erythrois arising from the procifice of the Peritonaeum, going into the Scrotum together with the spermatike vessels which it involves and covers, this appears red both by reason of the vessels as also of the cremaster muscles of the Testicles; Then the Epididymis or Dartos which takes its originall of the membrane of
of the spermatick preparing vesells. The fleshe of the Testicles is as it were a certaine collection of matter about the vesells, as we faid of other entrailes. But you must obferue that the Erythrois encompasse the whole stone, except its head, in which place it flicks to the Epididymus which is continued through the whole subfance of the Testicle. This Epididymus or Dartos was therefore put about the stones, because the Testicles of themselves, are loose, spongeous, cavernous and soft, so that they cannot safely be joyned to the spermatick vesells which are hard and strong. Wherefore Nature that it might joyn extremes by a fit Medium, or meanly, formed this coat Epidi-
dymis. This is fearte apparent in weomen by reason of its smallnesse. The two fore-
mentioned common coats, adhere or flicke together by their vesells not only amongst themselves, but also with the Erythrois. You muft besides obferue the Cremaster 
muscles are of the faid subfance with other muscles, small and thin, of an oblique 
and broad figure, arizing from the membrane of the Peritoneum, which (as we faid 
before) assumes fleshe from the flanks. Their composition is like that of other muscles, 
They are two, one each fide on. They are fttucke from the ends of the flanks, even to the 
stones. They have connexion with the proceed of the Peritoneum and Testicles. Their 
temper is like that of other muscles. Their action is to hang and draw up the Testicles 
towards the belly, whence they are called, hanging muscles. The Testicles are moft 
commonly two in number, on each fide one, fometimes there be three, fometimes 
one alone, as it happens also in the Kidneies; for fome have but one Kidney. They 
lye hid in the Scrotum at the very roots of the thare bone, connected to the princi-
pall parts of their vesells, with the necke of the bladder and yard; but by their coats 
they adhere to the parts from whence they have them. They are of a cold and moif temper, becaufe they are glandulous; although they may be hot by accident 
by reason of the multitude of the vesells flowing thither. Those whole testicles are 
more hot are prompt to venery, and have their privities and the adjacent parts very 
hairy, and besides their testicles are more large and compact. Those on the con-
trary that have them cold are slow to venery, neither doe they beget many children, 
and those they get are rather female than male, their privities have little hair upon 
them, and their testicles are small, soft and flat.

The action of the testicles is to generate feed, to corroborate all the parts of the 
body, and by a certaine manly irradiation to breed and encrease a true masculine cou-
rage. This you may know by Eunuches or fuch as are Gels, who are of a womanish 
nature, and are oftimes more tender and weake than weomen. As Hippocrates, 
teaches by the example of the Scythians, lib. de Hec. focijs et aquis.

CHAP. XXIX.

Of the varicous bodies or Parafalts, and of the ejaculatory vesells 
and the glandulums or Prostates.

He varicous Parafalts are nervous and white bodies, like as the nerves, 
round and clofe woven amongst themselves, they are fttuck in even from 
the top to the bottome of the testicles, from whence prefently by their de-
parture they produce the Pula ejaculatoria, or trading vesells. But unlefe 
we doe very well diftinguifh in their names, wee fhall feare fhun confufion. For that 
which I call Parafall, that is, as it were the head of the testicle, being as if it were 
lke another stone, is called Epididymus by Galen. But I by the exam-
ple and authority of many Anatomifts, understand by the Epididymus the proper 
coat of the testicles, of which thing I thought good by the way to admonifh you 
of. Their Action is by their crooked passages to hinder the feed from departing 
out of the preparing into the leading vesells, before it shall be moft perfectly labou-
red and concealed in these vesells by the power and force of the testicles. For in the 
first windings, the blood looks pure; but in the laft it is not fo red, but somewhat 
whitell. For Nature commonly doth thus delay the matter in its passage either by 
strainem or obliquity, which it defireth to make more perfect and elaborate by any
new conception; this we may learn by the foldings of the Testis mirror, the wrinkled in the bottom of the Guts, the tinny of the Liver, the capillary veins dispersed through the body of the Liver, certainly nature hath intended some such thing in the making of the spermaticke vessels. Their quantity is visible, and figure tending somewhat to the stomach, the ariete of the capillary vessels, their temper is cold and dry. They be two in number, one to each testicle. But there various bodies are called Parafrat, Affisters, because they superficially assist, and are knit to the testicles according to their length, or long-ways. Out of the Parafrat proceed the Vasa eiaculatores, or leading vessels, being of the same substance as their progenitors, that is, solid, white and as it were nervous. Their quantity is indifferent, their figure round, and hollow, that the seed may have a free passage through them, yet they seem not to be perforated by any manifest passage, unless by chance in such as have had a long Gomorrhea. They have like temper as the Parafrats, between which and the Prostates they are seated, immediately knit with them both; as in both the coat and the other vessels with the parts from whence they take them.

But we must note, that such like vessels coming out of the Parafrat ascends from the bottom of the stones even to the top, in which place meeting with the preparing vessels, they rife into the belly by the fame passages, and bind themselves together by nervous fibers, even to the inner capacity of the belly, from whence turning back, they forfake the preparing, that so they may run to the bottom of the bladder, into the midst of two glandulous bodies which they call prostates facinare at the neck of the bladder, that there meeting together they may grow into one passage.

For thus of three passages, that is, of the 3 leading vessels and 1 passage of the bladder, there is one common one in men for the casting forth of seed and urine. A Caruncle rising like a cleft at the beginning of the neck of the bladder argues this uniting of the passages, which receiving this frame passage which is sufficiently large, is oft times taken by such as are ignorant in anatomy for an unnatural Caruncle, then especially when it is twaine through any occasion. These leading vessels are two in number, on each side one. Their action is to convey the seed made by the testicles to the Prostates and to the neck of the bladder, to be cast forth at the common passage. But if any ask whether that common passage made by the two leading vessels between the two glandulous bodies be obvious to sense or no? We answer it is not manifest, though reason compell us to confesse that that way is perforated by renoun of the spermaticke, gross and viscus matter carried that way. But peradventure the reason why that passage cannot be seen is, because in a dead carcasse all small passages are cloaid and hid, the heat and spirits being gone, and the great apace much lefe, by reason the perforations fade, and fall into themselves. Yet certainly these passage must needs be very ftrait, even in a living man, seeing that in a dead they will not admit the point of a needle. Wherefore we need not fear, lead in searching, whilest we thrust the Catheter into the bladder, it penetrate into the common passage of the leading vessels which runnes within the Caruncle, unless peradventure by some chance, as a Gemmeh, or some great Phlegmon, it be much dilated besides nature. For I have sometimes seen such passages to open, that they would receive the head of a Spatheine; which thing should admonish us, that in searching we take great care, that we doe not rashly hurt this Caruncle, for being somewhat rashly handled with a Catheter it caueth blood, especially if it be inflamed. But alfo the conourse of the spirits flowing with great violence together with the feed, much helps forwaerd such ejaculation thereof performed through these strait passages by the power of the imaginative faculty in the Act of generation.

After the leading vessels follow the Prostates, being glandulous bodies of the same substance and temper that other Glandules are. Their quantity is large enough; their figure round, and somewhat long, sending forth on each side a vast production of an indifferent length. They are composed of veins, nerves, arteries, a coat (which they have from the neighbouring parts) and lastly their proper bell, which they have...
from their first conformation. They are two in number, situate at the roots of the neck of the bladder, somewhat straightly bound, or yed to the same, to the leading vessels, and the parts annexed to them. But always observe, that every part which enjoys nourishment, life and sense, either first or last hath connexion with the principal parts of the body, by the intercours of the vessels which they receive from thence.

The use of the Prostatics is, to receive in their proper body the seed laboured in the testicles, and to contain it there, until it be troublesome either in quantity or quality or both. Besides they contain a certain oily and viscid humor in their glandulous body, that continually distilling into the passage of the urine, it may preserve it from the acrimony and sharpness thereof. But we have observed also on each side other Glandules, which Rendelham calls Appendices glanduloses, Glandulous dependences to arise from these Prostates, in which also their is seed referred.

The 10. figure, wherein those things shewed in the former figure, are more exactly set forth.

aa A part of the Midriff, and of the Peritoneum with the ribs broken.
bb The Convex or gibbous part of the Liver marked with bb, the hollow or cavous part with cc.
d The right and left ligaments of the Liver.
f The trunk of the gate Veine.
g The trunk of the hollow vein.
h The fatty veins both left and right.
i The ascent of the great artery above the hollow vein, and the divisions thereof.
j The Caliceal artery.
m n The emulgent vessels.
m pp The fat tunicles or coats torn from both the kidneys.

aa The ureters that goe unto the bladder. t w. The right spermaticall vein which ariseth near to s. x y. The double original of the left spermaticall veins, from the emulgent, y from the hollow vein. a The original of the spermaticall arteries. b Certaine branches from the spermaticke arteries which runne unto the Peritoneum. g The passage of the spermaticall vessels through the productions of the Peritoneum, which must be observed by such as use to cut for the Rupture. d The spirie bodden bodies entrance into the testicile, it is called Corpus varicosum pyramidale. e The Peristate. f The stone or testicile covered with his inmost coate. g The descent of the leading vessel called Vasa deferent. p The Bladder. r The right gus. s The glandules called prostatic into which the leading vessels are inserted. t The muscle of the bladder.
t Two bodies at the yard, and u and v his vessels. w The coat of the Testicile, x The muscle of the Testicile. y his vessels.
Chap. XXX.

Of the Vreters.

Now it seemes fit to speak of the Vreters, bladder, and parts belonging to the bladder. Therefore the Vreters are of a sprameworke, white, dense and solid substance, of an indifferent bigness in length and thickness. Their figure is round and hollow. They are composed of two coats, one proper consisting of right and transverse fibers, which comes from the emulgent veins and arteries, the other common from the Peritoni.

num besides they have veins, nerves and arteries from the Neighbouring parts.

They be two in number on each side one. They are situated between the Kidneyes (out of whose hollow part they proceed) and the bladder. But the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder, and the manner how the Vreters insert or enter themselves into the bladder.

For wee fee it is the Aire contained in these which fills them thus, neither can it bee pressed forth but with extraordinary force.

For this skinne or coat turned in by the force of the humor gives way, so the string pressed out by the body contained within, as if it were a topple; like to this is the infection of the Geriogus into the Intestines.

The Vreters have connexion with the above mentioned parts, with the muscles of the loines, upon which they runne from the Kidneyes to the bladder.

Wherefore nothing hinders, but that the stone Aiding through the Vreters into the bladder, may stupify the thigh as much as it did when it was in the Kidney. They are of a cold and dry temper.

Their use is, to serve as passages, or channels for carrying the urine into the bladder.

Chap. XXXI.

Of the Bladder.

The bladder is of the same substance that the Vreters, that is, nervous; that it may be the more easily dilated.

It is of a large proportion, in some bigger in some lesse, according to the difference of age, and habite of body. It is of a round figure and as Figure, it were Pyramidall.

It is composed of two coats, one proper which is very thick and strong composed of the three sorts of fibers, that is, in the inner side of the direct, without of the Vreters, and in the midst of the oblique.

The other common Coat coming from the Peritoni. hath veins and arteries on each side one, from the Hypostrick vessels above the holy-bone, also hath nerves on each side from the first conjugation mixt with the nerves of the holy-bone. For these nerves descend from the braine even to the end of the holy-bone.

It is but one and that situated in men in the lower belly upon the right Gut and below the share bone, but in women between the womb and that bone, to which it cleaves with its membranous ligaments, as it cleats to the yard by its neck, and so
of the right gut by its common coat and proper vessels. It is of a cold and dry temper.

The use and action thereof is by the fibers continually to draw the urine, and contain it as long as need requires, and then to expel it by the neck, partly by compression either of itself, or rather of the muscles of the Epigastrium and Midriff, because this motion, seeing it is voluntary cannot be performed unless by a muscle which the bladder wants; partly also by the dilatation and relaxation of the sphincter muscle composed of transverse fibers, like the sphincter of the fundament, after the same manner to shut up the orifice of the bladder, that the urine flow not out against our will. But the bladder as it fits is dilated, but as it is emptied, it is contracted like a purse. You may easily observe this Muscle in a Sowes bladder, it is stretched from the orifice of the bladder and beginning of the urinarie passage even to the privities even in women; but in men it is terminated in the Perineum, as soon as it hath left the right Gut.

Besides, this muscle is thus farre stretched forth, that the urine by its compression should be wholly pressed out of the bladder, which by too long stay would by its acrimony doe some harme. This is the common opinion of Anatomists concerning the Sphincter of the bladder, which never-the-less Fallopium allowes not of. For ( faith he ) if this muscle shou'd bee feituate beneath the glandulous bodies, the feed in copulation could never be cast forth without some small quantity of urine, Wherefore he thinks that this muscle is feituate above the Pefiais, and that it is nothing els but the beginning of the necke of the bladder, which becomes more flethy whilest it is woven with transverse fibers.

The eleventh figure of the bladder and yard.

AB, 2, 3, 4, 5, 7, 9. The two bodies which make the yard.
CC, 3, The place where these two bodies do first arise.
D 1, 2, 4, 5, 7, 9. The nut of the yard called gland penis.
EE, 4, 5. The fungous and redde substance of the bodies of the yard.
F, 4, 5. The mutual connexion of the bodies of the yard, and the nervous outward substance of the same, compassing round about the former fungous substance.
G, 3, 2, 4, 5, 7, 9. The passage of the urine, or common pipe running all along his length.
H, 1, 2. The first pair of Muscles of the yard.
I, L, 1, 2. The second pair of Muscles of the yard, in the first figure growing, in the second hanging from their insertion.
M, 1, 2. The sphincter of the right gut. N 3, 7, 8, 9. The round sphincter Muscle of the bladder. O, Q, A Membrane which
which is over the holes of the share bone. P 2. Arounde Ligament from the meeting of the share bones unto the head of the thigh. Q 3,7,8. The body of the bladder, R 3,7. The Preffure, into which feed when it is perfectly laboured, is led. SS 3,8. Portions of the ureters. T T 3, Portions of the vessels which leade downe the feed, VV 7,8, The umbilical ligaments. X 7,8. The ligament of the bladder cal'd Prerum. Y 7,8. The navel or umbilicus. Z 7,8. The umbilical vein. aa 7, The vein and artery of the yard. & 5. The aryery distributed through the body of the yard.

For the necke of the bladder it differes nothing in substance, composure, number, and temper from the bladder, but onely in quantity, which is neither so large nor round in figure, but somewhat long together with the yarde representing the shape of the letter S. It is placed in men at the end of the right Gut and Perinaun, rising upwards even to the roots of the yard, and with it bending it self downwards in weomen it is short; broad, and freight, ending at the orifice of the necke of the wombe betweene the nervous bodys of the Nymph.

In men it hath connexion with the bladder, the ejaculatory vessels, the right gut and yard, but in weomen onely with the necke of the wombe and privities. The use of it is in men to cast forth feed and urine, in weomen onely urine. But wee must note that the share bones must be divided and pulled asunder, in that part where they are joined, that so you may the more exactly obserue the situation of these parts. Besides you must note that by the Perinaun we understand nothing else, in men and weomen, than that space which is from the fundament to the privities in which the frame is called Taurus.

Ow followes the declaration of the Privie parts of men and weomen, and first we will treat of mens. The yard is of a ligamentous substance because it hath its originall from bones, it is of an indifferent magnitude in all dimensions, yet in some bigger, in some lesse; the figure of it is round, but yet some what flattet above and beneath.

It is composed of a double coat, Nerves, veins, arteryes, two ligaments, the paffage of the urine, and foure muscules. It hath its coats both from the true skin as also from the fleshie pannicle, but the veins and Arteryes from thefe of the lower part of the lower belly which runne on the lower part of the Holy-bone into the yard, as the feminary vessels runne on the upper part.

The ligaments of the yard proceed on both sides from the sides and lower commiffure of the share-bones; wherefore the yard is immediatly at his root furnished with a double ligament, but these two presently runne into onefpungy one. The paffage of the urine feitate in the lower part of the yard comes from the neck of the bladder betwene the two ligaments.

For the foure muscules, the two side ones comproting or making a great part of the yard, proceed from the inward exuberancy of the Hip-bone, and presently they are dilated from their originall, and then grow lesse againe. The two other lower arise from the muscules of the fundament and accompany the urinary paffage the length of the perinaun untill they enter the yard, but these two muscules cleave so close together, that they may forme one having a triangular forme.

The action of these four muscules in the act of generation is they open and dilate this common paffage of urine and feed, that the feed may be forcibly or violently cast into the field of nature; and besides they then keepe the yard so stifte, that it cannot bend to either side.

The yard is in number one, and feitate upon the lower parts of the share bone that it might
might bee more fliffe in erection. It hath connexion with the share-bone and neighbouring parts; by the particles of which it is composed. It is of a cold and dry temper. The action of it is to cast the seed into the womb, for preservation of mankind.

The head of it begins where the tendons end, this head from the figure thereof is called Glans and Balanes, that is the Nut, and the skin which covers that head is called Prapantium that is the foreskin. The flesh of this Glans is of a middle nature between the Glandulous flesh and true skin. But you must note that the Ligaments of the yarde are spongy contrary to the condition of others, and filled with grosse and blacke blood. But all these stirred up by the delight of desired pleasure and provoked with a venereall fire, swell up and erect the yarde.

**CHAP. XXXIII.**

Of the spermatieke vessels and testicles in weomen.

Now we should treat of the Privy parts in weomen, but because they depend upon the necke and proper body of the wombe, we will first speake of the wombe, having first declared what difference there is between the spermatieke vessels and testicles of men and weomen. Wherefore we must know that the spermatieke vessels in weomen do nothing differ from those in men in substance, figure, compouer, number, connexion, temper, original and use, but only in magnitude and distribution; for weomen have them more large and shorter.

It was fit they should be more large, because they should not onely convey the matter fit for generation of young and nourishment of the testicles, but also sufficient for the nourishment of the wombe and child; but shorter because they end at the testicles and wombe within the belly in weomen. Where you must note that the preparing spermatieke vessels, a little before they come to the Testicles, are divided into two unequall branches, of which the leffer bended, after the same manner as we said in men, goes into the head of the testicle, through which it sends a slender branch into the coats of the testicles for life and nourishment, and not onely into the coats but also into the leading vesseis. But the bigger branch descends on each side by the upper part of the wombe betweene the proper coat and the common, from the Peritoneum where it is devided into divers branches. By this difference of the spermatieke vessels you may easilie understand why weomen caft forth leffe seed than men.

For their Testicles, they differ litle from mens but in quantity. For they are leffer in and figure more hollow and flat, by reason of their delicate heat which could not elevate or lift them vp to their just magnitude. Their compouer is more simple, for they want the serotum or coed, the fleshy coat, and also according to the opinion of some the Erythroides, but in place thereof they have another from the Peritoneum, which covers the proper coat, that is the Epiderymus, or Darts. Silvius writes that womenes Testicles wants the Erythroides; yet it is certaine that besides their peculiar coat Darts, they have another from the peritoneum, which is the Erythroides, or as Fallapius calls it the Erythroides, that as much as the vaginalis or sheath. But I thinke that this error hath sprung from the misunderstanding that place in Galen where he writes, that womenes testicles want the Epiderymus. For we must not understand that to be spoken of the coate, but of the various parts (as I formerly said). They differ nothing in number, but in fire, for in men they hang without the belly at the share bone above the Peritoneum; weomen have them lying hide in their belly, near the bottome at the sides of the wombe, but yet so as they touch not the body of the wombe.

But these testicles are tyed to the wombe both by a coate from the Peritoneum, as also by the leading vesseis deeding to the horns of the wombe, but to the reft of the body by the vesseis and the nerves arifing from the holy bone and Coxtall.
coital nerves. They are of a colder Temper than mens. The ejaculatorie, or leading vessels in women differ thus from mens, they are large at the beginning, and of a veinate consistancy, or substancies, so that you can scarce discern them from the coate Peritoneum, then presently they become nervous, and was to flender, that they may seeme broken or rorne, though it be not so; but when they come nearer to the horns of the womb, they are againe dilated; in their other conditions, they agree with mens, but that they are altogether more flender and short. They have a round figure, but more intricate windings than mens. I believe, that these windings might supply the defect of the various Parasites. They are seated betweene the testicles and wombe, for they proceede out of the head of the testicle, than presently armed with a coate from the Peritoneum, they are implanted into the wombe by its horns.

Why they have more intricate windings. Their fte.

The twelfth Figure of the Wombe.

A. The bottome of the wombe laid open without any membrane.
BB. The necke of the wombe turned upward.
CD. A part of the bottome of the wombe like the nut of the yard, wandering into the upper part of the necke of the wombe, in the middle whereof the orifice appeareth.
EE. A membrane knitting the womb to the Peritoneum, and holding it together the vessels thereof.
F. The left testicle.
G. The spermaticall veins and arteries.
H. A part of the spermaticall vessels reaching unto the bottome of the wombe.
I. One part of the vessels coming to the testicles and a vessel leading the seed unto the womb.
K. The coate of the testicle with the implication of the vessels.
L. The cavitie of the bladder opened.
M. the insertion of the Vreters into the bladder.
N. the Vreters cut from the Kidneys.
O. the insertion of the necke of the bladder into the lap or privitie.

The second Figure.

aa. The spermaticall veins and artery.
bb. branches distributed to the Peritoneum from the spermaticall vessels.
c. the bottome of the wombe.
d. the necke of the wombe.
e. certaine vessels running through the inside of the wombe, and the necke thereof.
ff. vessels reaching to the bottome of the wombe produced from the spermaticall vessel.
gg. the leading vessel of seed called Tuba the Trumpet.
hha. branch of the spermaticall vessel compassing the trumpet.
ii. the testicles.
kk. the lower ligaments of the wombe, which some call the Crema/teres or hanging muscles of the wombe.
l. the lap or privitie into which the Crema/teres do end.
m. a portion of the necke of the bladder.
The third Figure.

aa. the spermaticall vessels, bb. a branch from these spermatical vessels to the bottome of the wombe. cc. the body or bottome of the wombe. d. the necke of the fane, e. the necke of the bladder ending into the necke of the wombe. ff. the testicles. gg. the leading vessels, commonly though not so well called the ejaculatory vessels, hh. the division of these vessels, one of them determining into the horns at double kk. ii. the other branch ending in the necke, by which women with child avoid their seede. kk. the horns of the wombe.

The fourth Figure.

AB. The bofome of the bottome of the wombe, at whose sides are the horns. CD. a line like a future or fame, a little differing the name of the wombe. EE. the substance of the bottome of the wombe, or the thicknesse of his inner coate. F. a protruberence or swelling of the wombe in the middle of the bofome. G. the orifice of the bottome of the wombe. HH. the coate or second cover of the bottome of the wombe, coming from the Peritonam. III. a portion of the membranes which tie the wombe. KK. the beginning of the necke of the wombe. L. the necke of the bladder infered into the necke of the wombe. m. the Colitus in the toppe of the privity. n. the inequality of the privitie where the Hymen is placed. o. the hole or passage of the privitie in the cleit. p. the skinny caruncle of the privitie.

He Wombe is a part proper onely to women, given by nature instead of the Stomach, as the necke thereof, and the annexed parts in stead of the vordi so that if any more exactly consider the parts of generation in women and men, he shall finde that they differ not much in number, but only in situation and use. For that which man hath apparent without, that woman have hid within, both by the singular providence of Nature, as also by the defect of birth in women, which could not drive and thrust forth those parts, as in men. The wombe is of a nervous and membranous substance, that it may be more casily dilated and contracted, as neede shall require.

The magnitude thereof is diverse, according to the diversitie of age, the use of venery, the flowing of their courses, and the time of conception. The wombe is but small in one of unripe age, having not used venery, nor which is menstuous; therefore the quantitie cannot be rightly defined.

The figure of the wombe is absolutely like that of the bladder, if you consider it without the productions, which Herophilus called horns, by reason of the similitude they have with the horns of Oxen at their first comming forth. It consists of simple and compound parts. The simple are the veins, arteries, nerves, and coates. The veins and arteries are foure in number, two from the preparing spermaticke vessels, the two other ascend thither from the Hypogastricke, after this manner.

First, these vessels before they ascend on each side to the wombe, divide themselves into two branches, from which one goe to the lower part of the wombe, other to the necke thereof, by which the menstuous blood, if it abound from the conception, may be purged.

Nerves come on both sides to the wombe, both from the sext conjugation, descending by the length of the backe bone, as also from the holy bone, which presently united and joyned together, ascend and are distributed through the wombe, like the veins and arteries.

The uterous or common coate of the wombe, proceeds from the Peritonam, on that part it touches the holy bone; but the proper it hath from the first conjugation, which is composed of the three sorts of fibers, of the right on the inside for the attraction of both feedes, the transverse without to expell, if occasion be, the oblique in the midde for the due retention thereof.
The womb admits no division, unless into the right and left side, by an obscure line or suture, such as we see in the Seratium, but scarce so manifest, neither much after the manner of the ancients, or imagine any other cels in the womb. For by the law of nature, a woman at one birth can have no more than two. An argument hereof is, they have no more than two dugges. If any chance to bring forth more, it is besides nature, and somewhat monstrous, because nature hath made no provision of nourishment for them.

Nature hath placed the womb at the bottom of the belly, because that place is the fite and right fide, by an obscure line or suture, such as we see in the Seratium, chiefly thicke in that place, it is tied to the hollow bone, and the bones of the hand and loins.

By reason of this strict connexion, a woman with child feeling the painfull drawings backe, and as it were convulsions of those ligaments, knowes her selfe with child, it is of a cold and moist temper, rather by accident, than of it selfe. The addition thereof is to contain both the feeder, and to cherish, preferve, and nourish it, so contained, until the time appointed by nature; and also besides, to receive, and evacuate the membraneous blood. The compound parts of the womb are, the proper body and necke thereof, that body is extended in women bigge with child, even to the navell, in some higher, in some lower.

In the inner side the Cotyledones come into our consideration, which are nothing else than the orifices and mouthes of the veines, ending in that place. They scarce appear in women, unless prefently after child-bearing, or their menstruall purgation, but they are apparent in sheepe, Goates, and Kine, at all times like wheat cornes, unless when they are with yong, for then they are of the bignesse of half a nut: but then also they swell up in women, and are like a rude piece of fleith of a finger and a halfe thicke; which begin upon all the natural parts of the infant (but up in the womb, out of which respect this shapelesse fleith, according to the opinion of fome, is reckoned amongst number of coats investing the infant, and called Chorion, because, as in beasts, the Chorion is interwoven with veines, and arteries, whence the umbilicall veifels proceede; so in women this fleithie lump is woven with veines, and arteries, whence fuch veifels have their originall. Which thing, how true and agreeable to reason it is, let other men judge.

There is one thing whereof I would admonish thee, that as the growth of the Cotyledones in beafts, are not called by the name of Chorion, but are only faid to be the dependances thereof, in women fuch Cowen Cotyledones merit not the name of Chorion, but rather of the dependances thereof.

This body ends in a certaine straitness which is met withall, in following it towards the privities, in women who have borne no children, or have remained barren some certaine time; for in such as are lately delivered, you can fee nothing but a cavite and no straitness at all. This straitness wee call the proper orifice of the womb, which is most exactly after the conception, especially until the membrane, or coats incomposing the child be finifhed, and strong enough to containe the seede, that it flow not forth, nor be corrupted by entrance of the aire; for it is opened to fend forth the seede, and in some the couries and feros humors, which are heaped up in the wombe in the time of their being with child.

From this orifice the necke of the wombe taking its originall, is extended even to the privities. It is of a mucusulce substance, composed of soft fleith, because it might be extended and contracted, wrinkled, and stretched forth, and unfolded, and wretched, and shaken at the conning forth of the child, and after be reforced to its former roundnesse and integritie. In proceed of age it grows harder, both by use of venery, and also by reason of age, by which the whole body in all parts thereof becomes drie and hard. But in growing, and young women, it is more tractable and flexible for the necessitie of nature.
The magnitude is sufficiently large in all dimensions, though divers, by reason of the infinite variety of bodies. The figure is long, round, and hollow. The composition is the same with the womb, but it receives not so many vessels as the womb; for it hath none but those which are sent from the Hypogastric veins, by the branches ascending to the womb. This neck on the inside is wrinkled with many crests, like the upper part of a dogges mouth, so in copulation to cause greater pleasure by that inequality, and also to shorten the act.

It is only one, and that situate between the neck of the bladder and the right gut, to which it closely sticketh, as to the womb by the proper orifice thereof, and to the privities by its own orifice; but by the vessels to all the parts from whence they are sent.

It is of a cold and dry temper, and the way to admit the seed into the womb; to exclude the infant out of the womb, as also the menstrual evacuation. But it is worth observation, that in all this passage there is no such membrane found, as that they called Hymen, which they signified to be broken at the first coition. Yet notwithstanding Columbus, Falsoius, Wierus, and many other learned men of our time think otherwise, and say, that in Virgins a little above the passage of the urine, may be found and seen such a nervous membrane, placed overwhar as it were in the middle way of this neck; and perforated for the passage of the courses. But you may finde this false by experience, because that in some a good quantity of blood breaks forth at these places at the first coition.

But it is more probable, that this happens by the violent attrition of certaine vessels lying in the inward superfcicies of the necke of the womb, not being able to endure without breaking so great extention as that nervous necke undergoes at the first coition. For a maiden which is marriageable, and hath her genital parts proportionable in quantity and bignesse to a man, shall finde no such effusion of blood, as we shall shew more at large in our Booke of Generation.

This necke ends at the privities, where its proper orifice is, which privy parts we must treat of, as being the productions and Appendices of this necke. This pudendum, or privitie, is of a middle sub stance, betweene the fleth and a nerves magnitude sufficiently large, the figure round, hollow, long. It is composed of veines, arteries, nerves, descending to the necke of the womb, and a double coate proceeding from the true skime and fellice pannicle; both these coates are there firmly united by the flesh comning betwene them; whereupon it is said, that this part consists of a muciluous coate. It is one in number, furround above the Ferrament. It hath connexion with the fundament, the necke of the womb and bladder by both their peculiar orifices.

It hath a middle temper, betwenee hot, and cold, moist and dry. It hath the same use as a mans Pectus or fore skime, that is, that together with the Numpha it may hinder the entrance of the aire, by which the womb may be in danger to take cold.

The lips of the privities called by the Greekes &f;fiminemen, by the Latines &la, contain all that region which is invelled with haires; and because we have fallen into mention of these Nymphes, you must know that they are as it were productions of the mucilous skime, which depend on both sides, from the upper part of the sharbone downwards, even to the orifice of the necke of the bladder, oft times growing to so great a bignesse, that they will stand out like a mans yard. Wherefore in some they must be cut off in their young yeares, yet with a great deale of caution, lest if they be cut too rashly, so great an effusion of blood may follow, that it may caufe either death to the woman, or barrenneffe of the wombe by reason of the refrigeration by the too great effusion of blood. The latter Anatomists, as Columbus and Falsoius besides these parts, have made mention of another particle, which stands forth in the upper part of the privities, and alfo do the urinary passage, which joynes together these wings were formerly mentioned. Columbus calls it Tentigo, Falsoius Cleitoris, whence proceeds that infamous word Cleitorization, (which signifies impudently to handle that part.) But because it is an obscene part, let those which desire to know more of it, read the Authors which I cited.
A.B.C.D. The peritoneum reflected or turned backward, above and below.
E.F. The gibbous part of the liver E; the cave or hollow part F.
G. The trunk of the gate vein.
H. The hollow vein.
I. The great artery.
J. The roots of the Coecal artery which accompanies the gate vein.
L.M. The fatty vein going to the coate of the kidneies.
N.O. The fore-part of both the kidneies.
T.V. The emulent veins and arteries.

aa. The right ureter at the lowest a, cut from a part which neere to b, sticketh yet to the bladder, because the bottome of the bladder is drawne to the left-side.
b. The left ureter inferred into the bladder neere to, because the bottome of the bladder is drawne to the left-side.
c. The right ureter cut from apart which neere to c, and sticketh yet to the bladder, because the bottome of the bladder is drawne to the left-side.

dd. The spermaticke veine which goeth to the left testicle marked with d.
ee. The spermaticke veine which goeth to the left testicle marked with e.
ff. The trunke of the great artery from whence the spermaticall arteries doe proceed.
g.h. The spermaticall arteries. ii. The two testicles. ii. A branch which from the spermaticke vessels reacheth unto the bottome of the wombe. j.j. The leading vessel of the seed which Falopius calleth the suba or trumper, because it is crooked and reflected.
n.n. A branch of the spermaticke vessel, compassing the leading vessel. oo. A vessel like a worme which paffeth to the wombe, some call it cremaster. p. The bottome of the wombe called fundum uteri. q. A part of the right gut. r.s. The bottome of the bladder whereto is inferred the left ureter, and a veine led from the necke of the wombe neere unto r. t. The necke of the bladder. u. The same inferred into the privity or lap.
y. A part of the necke of the wombe above the privity. yy. Certaine skinnie Caruncles of the privities, in the midft of which is the slit, and on both sides appeare little hilllocks.

The Figures belonging to the Dugge and Breaffs.

aa. The veines of the Dugge which come from those, which descending from the top of the shoulder, are offered to the skinne.
b. The veines of the dugges derived from those which through the armehole are led into the hand.
c. The body of the Dugge or Breast. dd. The kernels and fat betweene them.
e. The veines of the Dugges descending from the lower part of the necke called jugulum, under the breastbone.
He membranes or coats containing the infant in the wombbe, and of the Navell.

Their substance, mage, minute,figurine, and composition.

Their number.

Of the coats containing the infant in the wombbe, and of the Navell.

He membranes or coats containing the infant in the wombbe of the mother, are of a spermaticke and nervous substance, having their matter from the feed of the mother. But they are nervous that so they may be the more easily extended, as it shall be necessary for the child. They are of good length and breadth, especially neare the time of deliverance, they are round in figure like the wombbe.

Their composition is of veines, arteries, and their proper substance. The veines, and arteries, are distributed to them (whether obliquely, or manifeely, more or fewer) from the wombbe by the Cotyledones, which have the same office, as long as the child is contained in the wombbe, as the nipples or pappes of the nurses after it is borne. For thus the wombbe brings the Cotyledones, or veines, degenerating into them, through the coats like certaine paps to the infant shut up in them.

These coats are three in number according to Galen; one called the Chorion, second, or afterbirth; the other Allantoides, the third Amnios. I find this number of coats in beasts, but nor in women, unlesse peradventure any will reckon up in the number of the coats, the Cotyledones swollen up, and grown into a flesie maffe, which many skillfull in Anatomy doe write, which opinion notwithstanding we cannot receive as true. I could never in any place finde the Allantoides in women with child, neither in the infant borne in the sixth, seventh, eight, or in the full time, being the ninth month, although I have sought it with all possible diligence, the Midwives being far apart, which might have violated some of the coats.

But thus I went about this businesse, I devised the dead body of the mother crostwise upon the region of the wombbe, and taking away all impediments, which might either hinder, or obfuscure our diligence, with as much dexterity as was possible, wee did not onely draw away that receptacle or den of the infant, from which it stucke by the Cotyledones, but also took away the first membraine which we called Chorion, that which lies next under it, called Amnios, without any rending or tearing: for thus we poured forth no moisture, whereby it might be said, that any coate, made for the containing of that humor, was rent, or torn. And then we diligently looked, having many witnesse and spectators present, if in any place there did appear any distinction of these two membraines, the Allantoides, and Amnios, for the separatying the contained humors, and for other uses which they mention.

But when we could perceive no such thing, we tooke the Amnios filled with moisture on the upper side, and having opened it, two servants so holding the apparition, that no moisture might flowe out of it into the circumference of the Chorion or womb, then presently with spunge we drew out by little and little all the humidite contained in it, the infant yet contained in it, which was fit to come forth, that so the coat Amnios being freed of this moisture, we might see whether there were any other humor contained in any other coate besides. But having done this with singular diligence and fidelity, we could see no other humor, nor no other separacion of the membraines besides.

So that, from that time I have confidently held this opinion, that the infant in the wombe, is onely wrapped in two coates, the Chorion and Amnios. But yet not satisfied by this experience, that I might yet be more certaine concerning this Allantoides, having passed through the two former coates, I came to the infant, and I put a quill into its bladder, and blew it up as forceably as I could, to see, if by that blowing I might force the aire into that coate which we questioned, as some have written. But neither thus could I drive any aire from hence, through the navell into the controverted coate, but rather I found it to flye out of the bladder by the privities. Wherefore I am certainly perswaded that there is no Allantoides. Moreover I could never finde
contained in the chest.

If contained in the chest, the urine and sweat of the infant may easily and without any discomfort be received, collected, and contained in the same coat, by reason of the small difference which is between them. But if any object that the urine by its sharpness and touching will hurt the infant; I will answer, there can be no great sharpness in the urine of so small an infant, and that, if that be any, it is tempered by the admixture of the gentle vapour of sweat.

Besides, if you consider, or have regard to the use of such an humour (which is to hold up the child, lest by its weight it break the ties, by which it is bound to the womb,) wee shall find no humour more fit for this purpose than this serous, as which by its thickness is much more fit to bear up a weight than the thinne and to liquefy water. For so we see the sea or salt water carries greater weights without danger of drowning, than fresh rivers doe. Wherefore I conclude that there is no need that the urine should be kept and contained in one coat, and the sweat in another.

The Ancients who have writ otherwise, have written from observations made in beasts. Wherefore we make but only two coats the chorion and Amnios, the one of which seeing it containes the other, they both so encompass the child, that they veil it on every side.

Pallipinus in some fort seems to be of this opinion; for he only makes two coats; the chorion and Amnios, but he thinks the infant makes the water into a certain part of the chorion, as you may perceive by reading of his Observations. Both these coats are tied between themselves by the intercourse of most slender nervous fibres, and small vessels penetrating from the outer chorion to the inner Amnios. Wherefore unless you waryly handle these coats you may easily tear the Amnios in separating it. They are of the same temper with other membranes. Their use is different, for the chorion is made both for the preservation of the vessels which it receives from the womb for the generating of the umbilical veins and arteries, as also, to keep whole and safe the parts which it invests.

But the Amnios is to receive and contain the excrementitious and serous humours, which the child shut up in the womb is accustomed to evacuate. But this coat is very thinne and soft, but strong and smooth, left by its touch it might hurt the infant, whereupon it is called the Lamb-kinne coat.

He Navell follows these coats; it is a white body somewhat resembling the wherthen cord, or girdle of the Franciscan Friars, but that it hath not the knots standing so farre out, but only swelling in certain places, resembling a knot, only lifted up on one side, it rises and takes its original from a fleachy mass which we express by the name of swelling Cotyledones, and goes into the midst of the lower belly of the infant, yes verily into the midst of the whole body, whose root is therefore said to be. For even as a tree by the root, sucks nourishment from the earth, so the infant in the womb draws its nourishment by the navell. The greatest of it in breadth and thickness, equal the bigness of the little finger. But it is a foot and a halfe long, so that children are brought forth with it, encompassing their middle, neck, arms, or legs. The figure of it is round. It is composed of two arteries, one vein and two coats. It hath these vessels from that great multitude of capillary veins and arteries, which are seen dispersed over the chorion. Wherefore the vein entering in at the navell, penetrate from thence into the hollow part of the liver, where divided into two, according to Galen's opinion, it makes the gare and hollow veins. But the arteries, carried by themselves the length of the navell, cast themselves into the fisce, which

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\[ \text{Contdained in the Chest.} \]

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they make, as also all other, that from thence the vitall spirit may be carried by them over all the infant. It hath its two coats from the Chorion.

But seeing they are mutually woven and conjoined without any medium, and are of a sufficient strength and thicknese over all the navell, they may seeme to make the infants externall skinne and fleßskie pannicle. I know very many reckon two umbilical veins, as also arteries, and the urachus or through which the urine flowes into the coate Allantoises. But because this is not to be found in women, but onely in beasts, I willingly omit it, because I doe not intend to mention any parts, but such as belong to humane bodies. Yet if there be any, which can teach me, that these parts, which I thinke proper to brute beasts, are to be found in women, I will willingly confesse, and that to his credit, from whom I have reaped such benefit.

The other things that may be required concerning the navell as of its number, site, connexion, temper, and use, may easily appeare by that we have spaken before.

For we have apparently let downe these, when we said the navell was made for that purpose, that the infant may be nourished by it, as the tree by the roote, by reason of the continuation of the vessels thereof, with the preparing spermaticke vessels, made by God for that purpose, to whom be honour and glory for ever and ever. Amen.

The End of the third Book.
apter L.

What the Thorax, or the Chest is, into what parts it may be divided, and the nature of chest parts.

The Thorax or Chest is the middle belly, terminated or bounded above with the collar-bones, below with the middriff, before with the Sternum or breast, behind, with the twelve Vertebrae's of the backe on both sides, with the true and bafard ribs, and with the intercostall and intercartilagineous muscules. Nature hath given it this structure and composition, lest that being a defence for the vitall parts against externall injuries, it should hinder respiration, which is no leffe needfull for the preservation of the native heate, diffused by the vita-ments, and that up in the heart, as in the fountaine thereof, against internall injuries, than the other forementioned parts against externall. For if the chest should have bin all bony, verily it had beene the stronger, but it would have hindered our respiration or breathing, which is performed by the dilating, and contracing thereof. Wherefore left one of these should hinder the other, nature hath framed it, partly bony and grifelly, and partly flethie. Some render another reaon hereof, which is, that nature hath framed the chest, that it might here also observe the order used by it in the fabricke of things, which is, that it might conjoine the parts much disaggreeing in their compositure, as the lower belly, altogether flethie, and the head all bony, by a medium partaker both of the bony and flethie substance; which course we finde hath observed in the connexion of the fire and water, by the interpofition of the aire, of the earth and aire, by the water placed betwene them.
The Cheif is divided into three parts, the upper, lower, and middle: the collar bone contains the upper, the middle the lower, and the Sternum the middle. The Sternum in Cujam stricture of seven bones. I believe by reason of the great nature of the people that lived then. Now in our times you shall often find it composed of three, four, or five bones, although we will not deny that we have often observed it, especially in young bodies, to consist of seven or eight bones.

Wherefore those that have few bones in number in their Sternum, have them larger, that they might be sufficient to receive the ribs. This is the common opinion of the Sternum. Yet Pallasius hath described it far otherwise, wherefore let those who desire to know more hereof, look in his observations.

At the lower part of the Sternum there is a gristle, called commonly Ensiformis, and Malum granatum, or the Pomegranate, because it resembles that fruit; others call it Cartilago simiformis, that is, the breast-blade.

It is placed there to be, as it were, a bulwark or defence to the mouth of the stomack, and endued with most exquisite sense; and also that it should do the like to that part of the middle, which the dijet bears up in that place, situated above the orifice of the ventricule by that ligament coming betwixt, defending from the lower part of the same gristle into the upper part of the liver.

The common people think that this gristle sometimes falls down. But it so adheres, and is united to the bones of the Sternum, that the falling thereof may seem to be without any danger, although oftentimes it may be so moistened with watery and feous humidities, with which the orifice of the stomack abounds, that as it were soaked and drunk with these, it may be so relaxed, that it may seem to be out of its place, in which case it may be pressed and forced by the hand, into the former place and state, as also by applying outwardly, and taking inwardly affisting and drying medicines to exhaust the superfluous humidities.

The gristle at its beginning is narrow, but more broad and obtuse at its end, somewhat resembling the round or blunt point of a sword, whereupon it is also called Cartilago Ensiformis or the swordlike gristle. In some it hath a double, in others a single point.

In old people it degenerates into a bone. Now because we make mention of this gristle, we will shew both what a gristle is, and how many differences thereof there be, that henceforward as often as we shall have occasion to speak of a gristle, you may understand what it is.

A gristle is a similar part of our bodies, next to a bone most terrestrial, cold, dry, hard, weighty and without sense, differing from a bone in drierness only, which is more in a bone. Wherefore a gristle being lost cannot be regenerated, like as a bone without the interposition of a Callus.

The differences of these are almost the same with bones, that is from their constitution, substance, greatness, number, form, figure, connexion, action, and use. Omitting the other for brevity sake, I will only handle those differences which arise from size, use, and connexion. Therefore gristles, either adhere to the bones, or of and by themselves make some part, as the gristles of the eyelids called Taris, of the Epiglottis and throat. And others which adhere to bones, either adhere by the interposition of no medium, as those which come betwixt the bones of the Sternum, the collar bone, the share and hanch bones and others; or by a ligament coming betwixt, as those which are at the ends of the bastard ribs to the Sternum by the means of a ligament, that by those ligaments being softer than a gristle, the motions of the chest, may be more quickly and safely performed. The gristles which depend on bones, do not only yield strength to the bones, but to themselves, and the parts contained in them, against such things as may break and bruise them. The gristles of the Sternum, and at the ends of the bastard ribs are of this sort.

By this we may gather that the gristles have a double use, one to polish and levigate the parts to which that slippery smoothness was necessary for performance of their duties; and for this use serve the gristles which are at the joints, to make their motions the more nimble. The other use is to defend those parts upon which they are placed, from external injuries, by breaking violent
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\[\text{\textbf{Contained in the Chest.}}\]

\textit{\textbf{Lib. 4.}}

\textbf{Chapter II.}

Of the containing, and contained parts of
the Chest.

He containing parts of the chest are both the skinnies, the flethie pannicile, the fat, the breasts, the common coat of the muscles, the muscles of that place, the forementioned bones, the coate investing the ribbes and the \textit{Disphragma} or middrife. The parts contained are the \textit{Mediastinum}, the \textit{Pericardium} of purle of the heart, the heart, the lungs & their vessels. Of the containing parts, some are common to all the body, & the most part thereof, as both the skins, the flethie pannicile and fat, of which being we have spoken in our first booke, there is no neede now further to insist upon; Others are proper to the chest, as its muscles, of which we will speake in their place, the breasts, the forementioned bones, the membrane investing the ribs, and the \textit{Disphragma} or middrife.

Wee will treat of all these in order, after we have first shewed you the way, how you may separate the skinne from the rest of the chest. Putting your knife downe even to the perfect division of the skinne, you must draw a straight line from the upper part of the lower belly, even to the chinne; then draw another straight line, overtwarte at the collare bones even to the shoulder-blades; and in the places beneath the collar-bones (if you desire to shew the vessels) you may at once separate both the skinnies, the flethie pannicile, the fat, and common coat of the muscles; because these parts were shewed and spoken of in the dissection of the lowest belly.

Yet you must reserve the breasts in dissecting of the bodies of women; wherefore from the upper parts of the breasts, as artificially as you can, separate onely the skin from the parts lying under it, that so you may shew the Pannicile which there becometh flethie and mufcular, and is so spread over the necke, and parts of the face, even to the rootes of the haires.

\textbf{Chapter III.}

Of the Breasts or Dugges.

Breasts, as wee said, when we spoke of the nature of glandules, are of a glandulous substance, white, rare, or spongious, in maides, and women that doe not give sucke; they are more solid and not so large.

Wherefore the bigneffe of the Dugges is different: although of a sufficient magnitude in all. Their figure is round, somewhat long, and in some fort Pyramidal. Their composition is of the skinne, the flethie pannicile, glandules, fat, nerves, veins, and arteries, descending to them from the \textit{Axillaries} under the Sternum betwixt the fourth and fifth, and sometimes the sixth of the true ribbes.

And there they are divided into infinite rivelits by the interposition of the glandules and fat, by which ftt matter may be brought to be changed into milke by the facultie of the dugges.

Wee will speake no more of the nature of glandules, or kernels, as having treated of them before; onely we will add this, that some of the glandules have nerves, as those of the breasts, which they receive from the parts lying under them, that is, from the intercoffall, by which it comes to passe that they have most exquisit fent.
Their Connection.

Wherefore they have connection with the mentioned parts with their body, but by their vessels with all other parts, but especially with the womb by the reliques of the mamillary veins and arteries, which descend downe at the sides of the breast-blade, in which place these veins intimating themselves through the substance of the muscles are a little above the navill conjoined with the Epigastrick veins, which in some sort opposite to the Hypogastrick veins, which send forth branches to the womb, By the meeting of these it is more likely that this commerce should arise, than from other and those almost capillary branches, which are sometimes seen to descendent to the womb from the Epigastrick.

They be of a cold and moist temper, wherefore they say that the blood by being converted into milk becomes serosa and white by the force of the breast of the dugs. Their action prepare nourishment for the new borne babe, to warm the heart from whence they have received heat, and to adorn the breast.

By this you may know that some Glandules have action, others use, and some both. At the top of the dugs there are certaine bullocks, or emincencies called teats or nipples, by sucking of which the child is nourished through certaine small and crooked passages, which though they appeare manifest to the sight, whilest you press out the milk by pressing the dug, yet when the milk is pressed out they doe not appear, nor so much as admit the point of a needle, by reason of the crooked wayes, made by nature in those passages, for this use, that the milk being perfectly made should not flow out of its owne accord against the nurses will. For so the seed is retained and kept for a certaine time in the Prostatas.

Chapter III.

Of the Clavicles, or other Bones and Ribs.

We should handle these parts after the common order, we should now treat of the Muscles of the Chest which move the arms, and serve for respiration, and which first offer themselves to our sight.

But for that they cannot be fitly viewed, unless we view the muscles of the shoulder blade and necke, therefore I thinke it better, to deferre the explanation of these muscles untill such time as I have viewed the rest of the contained and containing parts, not onely of the chest, but also of the head, that having finished these we may come to a full demonstration of all the rest of the muscles, beginning with those of the head, which wee first meet with, and so proceeding the rest even to the muscles of the feet, as they shall seeme to offer themselves more fitly to discussion, that so, as much as lyes in us, we may shunne confusion.

Wherefore returned to our proposed taskse, after the forefaid muscles come the Collar bones, the sternum and ribs.

But that these parts may be the more easly understood, we must first know what a bone is, and whence the differences thereof are drawne.

Therefore a bone is a part of our body most terrestrial, cold, dry, hard, wanting all manifeft senses, if the teeth be excepted.

I said manifest senses, that you may understand that the parts have a double sense of touching, the one manifest, such as refides in the flesh, skin, membranes, nerves, teeth and certaine other parts; the other obscure, yet which may suffice to difference the helping and hurting tactual qualities, such sense the bowels and bones have, for very small fibers of the nerves are differcimated to these parts by mediation of their coat, or membrane, I lay so small, that they cannot be discerned by the eyes, unless (as Galen faith) by plucking such coats away from the parts.
But it is no marvel if nature would have these parts in like manner to have such small veins, contrary to the lungs and most part of the muscles, only to yield so much nourishment to the part, as should be needfull; for seeing the fulness of the bones is cold, dense and solid, it walsies the leffe.

Wherefore they need not so much blood for their nourishment, as the hot and soft parts, and besides the leffe bones have neither veins, nor arteries, but draw their nourishment, only by the force of the attractive faculty implanted in them.

The differences of bones are taken from many things, as from their Apophyses, Epi-

The Clavicles, or collar bones

The Clavicles are two very hard and solid bones, without any great nor notable cavity, situate on each side... whence they take the name of Clavicles. (from the Greeke κλάβος, which signifies a key or any other bar or fastning of a doore.) They carry the shape of a surgeon's Levatory.

But you must note that the Clavicles seems to be jointed to the primum by the mediation of a gristle bone. Moreover the space and cavity contained within the Collar bones is called by the Latinse Linum, by the French the upper...for the which we said is framed of diverse bones, as sometimes 3, sometimes 4, 5, 6, 7, and sometimes 8, you must note they are very spongy and full of pores, and of a faire fober confidence than the collar bones, wherefore more subject to corruption besides they are mutually joined by interposition of muscles. Their use is to be as a shield to defend the vital parts.

The Ribs are 14, in number, on each side 12, even of these are called true or per-

The Ribs, or true ribs

The external or fore-part of the Baffard or short ribs is griffly, that they should not be broken, and that they might be the easier lifted up in the diffusion of the stomack filled with meat. They are of a confidence sufficiently hard, yet more towards their root, than at the periostum, where they come nearer together, and are more hardly broken; they are smooth both within and without, but in the midst they have some signe of being double, or hollow to receive the veins and arteries, which nourish their bony substance; they are fashioned like a bow; their use is the same with the sternum, and besides to carry and strengthen the muscles serving for respiration.

The Anatomical Administration of the Sternum.

The Coate investing the ribs, which the common Anatomists call Pleura, is the last of the containing parts of the chest, which because it lies hid in the inner part thereof, it cannot be shone unless by pulling a finder of the Sternum; wherefore we must now shew the manner of opening the Sternum, that hereby we may not violate the original or insertion of any of the muscles. Wherefore first you must understand that which will shew in their proper place the original and insertion of the peectoral muscles, of the Muf-

Their coherence,
Of the Vital parts.

Of the Pleura, or coat investing the ribs.

The Membrane investing the Ribs is.

What the membrane investing the Ribs is.

Its original.

Whether, as there is a twofold pleura, or a double Pleura.

The Magnitude and figure.

The Nuncus subcostalis, or coat investing the ribs being the last of the containing parts of the Chest, is a large and broad membrane answerable in proportion of use and action to the Peritoneum of the lower belly. For as the Peritoneum generally and particularly covers all the natural parts, binding and holding them in their places, so this coat invests all the vital parts in general because it is stretched over all the inside of the Chest, but in particular, whilst it gives each a coat from itself.

It hath its original from the Peristium, (or as others will have it from the Pectorium,) investing the vertebrae of the Chest at the roots of the ribs. Wherefore it stickes very fast to the ribs, scarce to be separated, as also to all the parts bounding the Chest, and contained in it.

Pellitus reprehends Galen, because he said, that this was double on both sides; yea, Columbus defends Galen, and verily it is seen to be double in the inner part of the Chest, under the ribs and the muscles of the ribs, that in that space there may be way for the veins, arteries and nerves.

Some have made it two fold, and divided it into the internal and external, as those which have made two sorts of pleurises, the true and bastard, placing the external above the Ribs and intercostal muscles; but the internal under the Ribs, muscles, Diaphragm and sternum.

But we to shun ambiguity, intend only to proscribe those things which are manifest to the eyes; wherefore we say that the ribs are lined on the inside with a double coat; one which immediately and firmly stickes to them on every side called the Peristium, which is common to them and other bones.

The other which lies upon that Peristium and on the inside invests all the ribs, whence it is called the subcostalis externus. The substance, temper and composure are the same, as in other membranes. The magnitude in length, as also the figure is the same with the compasse of the inner part of the chesty the thickness of it is very little; This coat is commonly called the Pleura from the name of the part which it covers or lines (for the Grecians call the ribs pleurae.) and in like manner which happens betwixt.
Ye must speake of the parts contained in the Chest, seeing we have already handled the containing, beginning with the Mediastinum as being a part which in division first presents itself to our sight. The Mediastinum is of the same substance, thickness, composition, number, temper as the Pleura. For the substance of the Mediastinum is membranous, and though it be stretched all the length of the chest, yet it is of a small thickness, receiving veins, nerves and arteries from all the parts to which it is knit, like as the Pleura doth, but especially from the mamillary vessels descending under the sternum.

It is in number one, but it is made of two membranes produced from the sub-costral, for this ascending on each side by the hollowness of the chest to the sternum, and then at right angles it is reflected to the bodies of the vertebrae, whence the Pleura hath its original. In that reflection there is so much distance between each membrane, as may be sufficient to receive 2 fingers. For otherwise, seeing that they cannot penetrate through the hart, it was fit each side of the Pleura should turne to the Pericardium, that so they might arrive at the appointed place without offence. Neither yet is that space void and empty, but woven with many small nervous fibers. Columbus adds, that that place is often filled with a certain humor besides nature, which you may draw out, or evacuate by opening the sternum.

Yet Columbus may not know that such an humor is contained there. For the figure, the Mediastinum with the Pleura on each side represents the figure of a Leather Doctor, whose side is the Mediastinum, whose other side the Pleura, the bottom the part of the Pleura which is next the Medidastinum, the mouth the upper part of the Pleura at the first ribs. We shewed the site and connexion of the Mediastinum, when we declared its original.

The use thereof is to separate the vital parts, as it were into 2 cells, the right and left, that if peradventure it happen that the one be hurt, the creature may live by the benefit of the other.

And it hath another use which is to prop and hold up the Pericardium, that it fall not upon the heart with its weight, but tossed with the motions of the heart and chest, it may move to this or that side.

Chap. VIII.

Of the Diaphragm or Midriff.

Lithough the Midriff may seeme to be accounted rather a part containing than contained, yet for commodities sake we have deferred the demonstration thereof till now. Therefore it is a muscle round and long, terminating the lower part of the chest.

It is of the same substance, composition and temper as the muscles of the Epigastri, and it is made of two coats the lower whereof is from the Peritoniam, and the upper from the Pleura. Which getting to them fresh but not there, but in their circumference, by the benefit of the blood brought thither by the veins and arteries distributed through it, turne into a muscle, whose middle is nervous and membranous, but the extremities by which it is infected, one while fleshly as in that part next to the bastard ribs, another while tendenous, as where it touches the first & second vertebra of the loines, for it ends in them by 2 tendons manifest enough. It is one in number, interposed with an oblique fire betwixt the natural and vital parts.
Of the Vital parts.

Connexion.

It hath connexion with the lower part of the person and short ribs, and the two first vertebrae of the loines, but by its coats and vessels with the parts from whence it received them.

The extent thereof is equal to the compass of the lower part of the chest. The length of it is from the breath blade even to the first and second vertebrae of the loines. The thickness is diverse, for it is fatter thicker in its flinny extremity, than in its nervous original.

The Action thereof is to help the expulsion of the Excrenction by the muscular assistance of the Epiafcript muscles, but the chief use is for respiration, of which it is one of the prime instruments. This partition the Ancients called Phrenes, because the inflammation thereof caused like symptoms as the inflammation of the Brain, by reason of the large nerves on each side one which comes to it directly & primarily from the third, fourth and fifth vertebrae of the neck. This muscle differs from other muscles, specially in figure. It is perforated in three places, to give way or passage to the ascendent Hollow-veine, to the Artery Astis, and the Gullet.

Chap. IX.

Of the Lungs.

The Lungs are of a soft substance and flesh, rare and like a sponge, of a various colour pale red, their quantity being sufficiently large, for most commonly they are divided into 4 lobes disjoined with a manifest and visible division, on each side two, whereby they may be the more easily opened and contracted, and the air may the better enter.

Besides also in large bodies, who have a very great chest, there is found a fifth lobe, arising from the second lobe of the right side, as a cushion, or bolster to bear up the hollow vein ascending from the midriffe to the heart.

In little men who have a shorter chest, because the Heart is so near as to touch the Diaphragm, this Lobe is not seen, yet it is always found in Dogges.

The Lungs represent the figure or shape of an Oxes foot, or hoof, for like it they are thicker in their basis, but flenderer in their circumference, as you may see in blowing them up by the weazon, with your mouth or a pair of bellowes. They are compounded of a coat coming from the Pleura, which on each side receives sufficient number of nerves from the sixth conjugation, and also of the Vena arteriosa coming from the right ventricle of the heart, and the Arteria venosa from the left, as shall be shewed in the Anatomy of the heart; besides the Aspera arteria or Weazon coming from the throat, and lastly its own leath, which is nothing else than the concretion of cholerick blood poured out like foame about the divisions of the fore-mentioned vessels, as we have said of other parts.

The body of the Lungs is one in number, unless you will divide it into two; by reason of the variety of its site, because the Lobes of the Lungs stretched forth into the right & left side does almost involve all the heart, that so they may defend it against the hardines of the bones which are about it; they are tyed to the heart, chiefly at its basis, but to the roots of the ribs and their vertebrae by the coat hath from thence, but by the vessels to these parts from whence they proceed. But oft times presently from the first and natural conformation they are bound to the circumference of the ribs by certaine thin membranous productions which descend from thence to the Lungs, otherwise they are tyed to the ribs by the Pleura.

The nourishment of the Lungs is unlike to the nourishment of other parts of the body, for you cannot find a part equally rare, light and full of air, which may be nourished with blood equally thin and vaporous. In temper they incline more to heat than to cool, whether you have regard to their compoulure of cholerick blood, or their use, which is to prepare and alter the air that it hurt not the heart by its coldness. The Lungs is the instrument of voice and breathing by the Weazon or windpipe. For the Lobes are the instruments of voice, and the ligaments, of respiration. But the
Larinx or Throtle is the chief instrument of the voice, for the Weapon first prepares the voice for the Throtle, in which it being in some measure formed is perfected in the Pallate of the mouth, as in the upper part of a lute, or such like instrument, by the help of the Gargareon or uvula as a certaine quill to play withall.

But as long as one holds his breath, he cannot speak; for then the muscles of the Larinx, Ribs, the Diaphragm and the Epigastrick muscles are pressend downe, whence proceeds a suppression of the vocal matter, which must be sent forth, in making or uttering a voice.

Nature would have the Lungs light for many reasons; the first is that seeing they are of themselves immovable, they might be more obsequious and ready to follow the motion of the chest, for when it is straitened, the Lungs are straitened and subside with it; and when it is dilated, they also are dilated, and swell so big that they almost fill up all the upper capacity thereof.

Another cause is that by this their rarity they might more easily admit the entering Air, at such times as they have much, or sudden necessity, as in running a race. And lastly, that in Pleuries and other purulent abscesses of the Chest the Put or matter poured forth into the capacity of the Chest may be sucked in by the rare substance of the Lungs, and by that means the sooner expelled and expectorated.

The use of respiration is to cool and temper the raging heat of the Heart; For it is cooled in drawing in the breath by the cold air, and in sending out thereof by avoiding the hot fuliginous vapour. Therefore the Chest performs two contrary motions, for while it is dilated it draws in the encompassing air, and when it is deprest it expels the fuliginous vapour of the Heart, which any one may easily perceive by the example of a pair of Smittes bellows.

Of the Pericardium or purse of the Heart.

The pericardium is as it were the house of the Heart, which arising at the basis thereof (either the ligaments of the vertebrae's situate there or else the vessels of the heart yielding it matter) is of a nervous, thick and dense substance without any fibers. It retains the figure of the Heart, and leaves an empty space for the heart to perform its proper motions. Wherefore the bigness of the Pericardium exceeds that of the heart.

It consists of a double coat one proper of which we have spoken, another common coming from the pleura; and also of veins, arteries and nerves, the vessels partly coming from the mamillary, partly from the Diaphragm, chiefly there where it touches it, the nerves come on each side from the first conjugation.

It is only one, placed about the heart and annexed to it at the Basis thereof by its membranes, to the original of the Lungs, and the vertebra's lying under them, and by the vessels to the parts from whence it received them. It is of a cold and dry temper as every membrane is.

The use of it is to cover the heart, and preserve it in its native humidity, by a certaine natural moisture contained in it, unless you had rather say that the moisture we see contained in the Pericardium is generated in it after death by the condensation and concretion of the spirits. Although this seems not very likely, because it grows and is heaped up in so great quantity in living bodies, that it hinders the motion of the heart, and causes such palpitation or violent beating thereof, that it often suffocates a man.

For this Palpitation happens also to hearty and stout men, whose hearts are hot, but blood thin and watery by reason of some infirmity of the stomack or Liver, and this humour may be generated of vapours which on every side exhale into the pericardium from the blood boiling in the ventricules of the heart, where kept in by the density thereof they come into yellowish moisture, as we see it happens in an Allembeck.

Nature would have the pericardium of a dense and hard consistence, that by the force thereof
thereof the heart might be kept in better state; for if the Pericardium had beene bony, it would have made the heart like iron by the continual attrition; on the contrary, if it had beene soft and fungous, it would have made it spongy and soft like the Lungs.

CHAP. XXXI.

Of the Heart.

The Heart the chiefest mansion of the Soule, the organ of the vitall faculty, the beginning of life, the fountain of the vitall spirits, & so consequently the continual nourisher of the vitall heat, the first living and last dying, which because it must have a natural motion of itself, was made of a dense solide and more compact substance than any other part of the body.

Thehein thereof is woven with three sorts of fibers, for it hath the right in the inner part descending from the basis into the point, that they might dilate it, and so draw the blood from the hollow vena into the receptacles thereof, and the breath or air from the Lungs by the arteria vena; it hath the transverse without, which passe through the right at right angles, to contract the Heart, and so drive the vitall spirits into the great Artery Aorta, and the cholericke blood to the Lungs by the vena arteriosa, for their nourishment; it hath the oblique in the middle to contain the Aire and blood drawn thither by the forementioned vessels untill they be sufficiently elaborated by the heart.

All these fibers doe their parts by contracting themselves towards their original, as the right from the point of the heart towards the basis, whereby it comes to passe that by this contraction of the fibers the heart dilated becomes shorter, but broader, no otherwisse than it is made more long and narrow by the contraction of the transverse, but by the drawing of the oblique it is lessen'd in that part which lookes toward the vertebra, which chiefly appeares in the point thereof.

The magnitude thereof is indifferent bignesse, but yet in some bigger, in some lesse according to the diverse temper of cold or hot men, as wee noted in the liver.

The figure thereof is Pyramidal, that is, it is broader in the basis, and narrower at his round point.

The composition is composed of the most dense flesh of all the body, by the effusion of blood at the divisions and foldings of the vessells, and there concrete, as it happens also to the other Entailles. For the blood being there a little more dryed, than that which is concrete for the making of the Liver, turnes into a stickie substance more dense than the common flesh, even as in hollow ulcers, when they come to cicatrize.

It hath the Coronall vessells and arteryes, which it receives either on the right side from the basis, or on the left from the basis at the entrance of the Artery Aorta.

You cannot by your Eye difference that the Heart hath any other Nerves than those which come to it with the Pleura.

Yet I have plainly enough observed others in certaine beasts, which have great Hearts as swine, they appeared seate under the fat which covers the vessels, and basis of the heart, lest the humid substance of these parts should be dissolved and disipated by the burning heat of the Heart. Whereby you may perceive that the heat of the heart is different from the Elementary heat, as that which suffereth fat to grow about this Entail, where otherwisse it doth not concrete unleffe by cold or a remissive heat, which thing is chiefly worth admiration.

The Heart is one alone, situate most commonly upon the fourth Vertebra of the Cheef, which is in the middle of the Cheef. Yet some thinke that it inclines somewhat to the left side because we there feel the motion or beating thereof; but that happens by reason of its left ventricile, which being it is filled with many spirits, and the beginning of the arteryes, it beats far more vehemently, than the right. It required that fear by the decree of Nature, because that Region is the most safe and armed,
of the heart.

The ventricles are in number two, on each side one, distinguished with a felthly partition strong enough, having many holes in the superficies, yet no where piercing through.

The right of these ventricles is the bigger and incompanied with the softer and rarer flesh; the left is the letter but is enfrnt with a threefold more dense and compact flesh; for the right ventricle was made for a place to receive the blood brought by the hollow veins, and for distributing of it, partly by the venas artesfofa into the Lungs, for
for their nourishment, partly into the left ventricle, by sweating through the wall or partition, to yield matter for the generation of the vitall spirits.

Therefore because it was needfull there should be so great a quantity of this blood, it was likewise fit that there should be a place proportionable to receive that matter. And because the blood which was to be received in the right ventricle was more thick, it was not so needfull, that the flith to contain it should be so compact, but on the contrary the arterious blood and vitall spirit have need of a more dense receptacle, for fear of wasting and left they should vanish into air; and also to room that to the heat being united might become the stronger, and more powerfully act upon the elaboration of the blood and spirits.

The action of the right ventricle.

Therefore the right ventricle of the heart is made for the preparation of the blood appointed for the nourishment of the Lungs, and the generation of the vitall spirits, as the lungs are made for the mitification, or qualifying of the aire. Which works were necessary, if the Phyficall Axiome be true; That like is nourished by like, as the rare and spongy lungs with more subtle blood; the subfiance of the heart groffe and dense, with the veinous blood as it flows from the Liver, that is groffe.

And it hath its Coronall veins from the Hollow veine, that it might thence draw as much as should be sufficient.

But the left ventricle is for the perfecting of the vitall spirit, and the prefervation of the native heart.

Of the Orifices and Valves of the Heart.

The action of the heart orifices.

Here be foure Orifices of the heart, two in the right, & as many in the left ventricle; the greater of the two former gives passage to the veine, or the blood carried by the hollow veine to the heart; the lesser opens a passage to the vena arteriosa, or the chorick blood carried in it for the nourishment of the lungs.

The larger of the two other makes a way for the distribution of the Artery Arteria and the vitall spirit through all the body; but the leffer gives egress and regriffe, to the Arteria venosa, or to the aire and fuliginous vapours. And because it was convenient that the matters should bee admittted into their proper ventricles by thefe orifices, by the Disseule, to wit, into the right ventricle by the greater orifice, and into the left by the leffer, and because on the contrary it was fit that the matters should be expell'd by the syphilis from their ventricles by the feue mentioned orifices,

Therefore nature to all these orifices hath put cleaven valves, that is to say, fixe in the right ventricle, that there might bee three to each orifice; five in the left, that the greater orifice might have three, and the leffer two, for the reason we will presently give.

These valves differ many ways, first in action, for some of them carry in matter to the heart, others hinder that which is gone out that it come not back again; Secondly they differ in feue, for tho' which bring in have membranes without, looking in, those which carry out have them within looking out. Thirdly in figure, for those which carry in, have a pyramidal figure, but those which hinder the coming back again are made in the shape of the Roman letter C. Fourthly in subfance, for the former for the most part are flethy, or woven with flethy fibers into certaine flethy knots ending towards the point of the heart. The latter are wholly membranous.

Fiftly they differ in number, for therebe only five which bring in,three in the right ventricle at the greater orifice, and two in the left at the leffer orifice; tho' which prohibit the coming back are fixe in each ventricle, three at each orifice.

Lafely they differ in motion, for the flethy ones are opened in the Disseule for the bringing in of blood and spirit, and contrary wife are shut in the syphilis, that they may contain all or the greater part of that they brought in. The membranous on the contrary are opened in the syphilis to give passage forth to the blood and spirits over all the body, but shut in the Disseule, that that which is excluded might not flow backe into the Heart. But you shall obserue that nature hath placed only two valves at the Orifice of the Arteria Venos, because it was needfull that this Orifice should bee always open, either wholly, or certainly a third part thereof; that the
the Aire might continually be drawne into the heart by this orifice in inspiration, and sent forth by expiration in the contraction of the heart. Whereby we may gather, that there is but one third part of that Aire we draw into the heart in breathing, but one third part of the orifice to ly open for its passage out. Therefore the expiration or breathing out, and the inspiration, so that we may truly say, that the inspiration, or drawing the breath in, is equally so long as the expiration is together with the rest, which is in the middle between the two motions.

Chap. XII.
Of the Distribution of the Vena arteriosa, and the Arteria venosa.

Having hitherto shewed the original of each of the vessels of the Heart, we must now speake of their distribution. The Vena arteriosa, or the arterial vessel, and the arteria venosa or the venous artery each proceeding out of his proper ventricle, that is, the right and left, are divided into two large branches, one of which goes to the right and the other to the left hand, the one lying crosse ways over the other, the vein alwaies riding over the artery, as you may understand better by the sight of your eyes, then by reading of bookes. These branches at their entrance of the lungs are divided into two other large branches, and each of them goe to his peculiar Lobe of the lungs; and these againe runne almost into infinite other branches, dispersed in three places over the Lungs. Thefe vessels have acquired their names by reason of that transmutation of substance, whereby the compoſure of a vein degenerates into an artery, and that of an artery into a vein, for the commodity of life. For this is a miracle of prudent nature to change the coats of the vessels of the lungs, producing a vein which in its body should imitate an artery, and an artery which should represent a vein. For if the Vena arteriosa should have retained its proper substance, the arterial blood which is carried by it from the heart to nourish the lungs, might by reason of its facility penetrate through, and flow away by reason of the rarity of the venous texture, and so nature should never have attained her conceived end, that is, to nourish the Lungs by reason of the continual motion of their contraction and dilatation.

For nourishment cannot be assimilated to the part, unless it be put and cleave to it, wherefor it was fit, that nature should make the body of this vein solid, that it might be immovable, unshaken and unbome (in respect of a vein which by its softness would have been too obsequious and yielding to the agitation of the Lungs) that it might have nourishment, which might be diffus’d into all parts thereof, and which might neither be drivne by its Diastole, nor driven back into the heart by its Systole. But the artery hath the confidence of a vein, that by that venoussoftness according to the necessity of nature it might be the more readily contracted and dilated, to bring the Aire in and carry the vapours forth of the heart. Here we meet with a difficulty, which is, by what way the blood is carried out of the right into the left ventricle of the heart.

Galen thinks that there be certaine holes in the partition made for that purpose, and verily there are such, but they are not perforated. Wherefore Columbus hath found out a new way, which is, that the blood is carried to the lungs by the Vena arteriosa, and there attenuated; and carried from thence together with the aire by the Vena venosa to the left ventricle of the heart; this he writes truly very probably. Botulus in his tracte De Catarrhio hath found out a third way, to wit a vein, which he calls Arteriasum matris, that is, The nurfe of the Arteries, which creeps a little above the Coronall to the right care of the Heart, and then goes into the left care thereof. But yet I am very much afraid, that this vein observed by Botulus, is that veine observed by Fallopius, whereby the Vena arterialis is joined to the Arteria, by which all the vitall blood is carried for the forming and nourishment of the lungs. This vein was made Arteria arteria for the commoditie of the lungs.
Calibris de infants corporis.  

while the infant is yet in the womb. Of which also Galen makes mention, but it had lain hid from his time to this day, but that Galen raised up the memory of it again.

Chap. XIII.

The distribution of the ascendant hollow veins.

He Hollow vein rising out of the gibbous part of the Liver, and resembling (according to Galen) the body of a tree, is divided into two notable branches, but not of like bigness. For the greater, by the hind part of the Liver upon the back bone and by the way receives certain other branches from the substance of the Liver which entered not into the great trunk with the rest. You may often see this descendent branch even to the bone upon which it lies in this its descent, covered with the substance of the Liver, so that it may seeme that branch proceeds not from that common trunk together with the ascendant, although indeed it always doth. But the lesser branch ascends to the upper parts, and is distributed after this manner following. For first arising into the middle it belows two small veins upon it, on each side one, which from that part are called  

Pronunci. But from thence when it arrives at the right Ear of the Heart, it makes the Coronae, the Coronall or Crowne veins, which compass the base of the heart in manner of a Crowne. Thirdly entering somewhat more deeply into its right Ear, in its greater part it produces the venas arteriosa. Fourthly lifted up above the heart, on the right side it produces the veine Azygos or side part (that is, without a fellow) which descending to the fourth rib, (recoynning from above downward) nourisheth the intercostall muscles and also the membranes of the lower ribs, on both sides, sending a branch into each of the muscles at the lower part of the rib, which may bee sufficient for their nourishment. Besides also oftentimes, especially in little men, this veine Azygos nourisheth all the spaces between all the ribs by the like branches, which it sends in the same manner to the foree upper ribs. Moreover also this Azygos sometimes, though but seldom, is found double, that is, on each side one. Here you must chiefly observe, that this vein after it hath nourished the spaces between the lower ribs, in its remainder descends under the Diaphragma and is joined on the left side to the Emulcens vein whereby it is manifest how an Abscess may be critically evacuated by the urine, in a pleurezy. But this same Azygos is more depressed on the right side, and meets with the Vena lumbares, but especially with one of them, which goes down to the thigh, whereby Galen's makes that it is very convenient in the beginnings of Pleuritises, to open the vein poplis, the vein of the Hann, Fifthly above the Azygos (when it is wanting there) it sends forth the branch called intercostal, to the other spaces between the upper ribs, although this is sometimes seen to come from the Azygos, which Galen calls the subclavia. Sixthly it brings forth the Mammary or mammaria, so called, because in their greater part they run to the dugs between the fourth and fifth ribs, for the use formerly mentioned; men and women have on each side one of these coming from the Subclavia: They are sometimes found to proceed by a certaine common orifice from the hollow veine, before it be divided into the Subclavians branches, but it is rather in beasts than in men, these veins descending by the sides of the sternum yield nourishment to the inner muscles of the chest, to the 7 intercostall muscles of the true ribs, to the sternocleid and to its ligaments and gristles, as also to the Mediastinum and the upper part of the right muscles, the adjacent parts. Seaventhly it produces the Cervicalis which on both sides through the holes of the productions of the Vertebrae's of the neck, ascends to the head, feeding many small branches into the spinall narrow through the holes by which the nerves passe, and also into the membranes, ligaments, gristles, bones, and neighbouring muscles. Eightly the Masculos or muscularous, which also arising out of the Subclavias is devied into two other branchesthe one whereof goeth upon the breast to the paps, nourishing the foreskin muscles, wherefore in a bastard pleurezy Cupping glases may be fitly applied in this place.
The other branch descends to the upper muscles of the chest, but especially to that which is called Latissimus. The tenth is the Axillaris. The eleventh the Humeralis, of which we will treat in their place. The twelfth and last is the Inguinalis properly so called, which is twofold, the internal and external. The internal being the lesser presently on both sides from this very beginning ascends by the sides of the Afferent Arteria or a weapon even to the mouth and skull, yielding nourishment to the parts by which it passes, as to the next membranes and nerves. But when it comes to the basis of the Cranium it is divided into two branches, the greater whereof going back along the basis of the Cranium to the hind part thereof, sending a branch to the long muscle situated upon the oesophagus, it enters the Cranium with the small Carotides through the hole of the nerves of the sixth conjugation, where they become one common vessel. The lesser sending a slippe to the organ of hearing by the hole called Cecum (or the blind) also enters the Cranium and is spent in the thicker meninx here to the hole of the third and fourth conjugation of nerves. The external lugular vein being greater and fairer, most commonly simple, yet sometimes double, either presently at his beginning, or a little after, ascends superficially on both sides of the neck, between the broad muscle or fleshly pannicle, being there easy to be discerned, and other muscles situated at the sides of the neck, into which as also into the skin it sends certain branches for nourishment.

The Figure of the hollow veins whole and freed from the rest of the body.
bones unto the loynes. Of the Vital parts.

bones unto the loynes, the lower intercostall veines, to the branches of the veine ascending, which go unto the distances between the ribs, & afford furcules unto the muscles which lye upon the ribs & the raker bones, & the membranes of the chest. The division of the hollow vein into two subclavian trunks near the jugulum under the breast bone. The subclavian branch tending on either side unto the arm, called by some Acatlaria. The upper intercostall veine which commonly sendeth three slips unto the distances of the upper ribs, unto which the first intercostall veine sent no branches. The defending mammary veine: this descendeth under the breast bone unto the right muscles of the Abdomen, & affordeth furcules to the distances of the griffles of the true ribs, to the Mediastinum, the muscles that lye upon the breast and the skin of the Abdomen. The connection of the mammary with the Epigastrick vein ascending about the navill under the right muscles. The veine of the necke called Cervicalis, ascending toward the Scull, which alloweth furcules to those muscles that lye upon the neck. The veine called Muscula, which is propagated with many furcules into the muscles that occupy the lower parts of the neck and the upper parts of the chest. The thoracic inferior running downward along the sides of the chest, and especially distributed into the muscles of the arm called Lattisimus, the inner lugal veine which enthrath into the Scull after it hath bestowed some furcules upon the rough artery. The externall lugular veine. The division of this veine under the root of the ear. A branch of the externall lugal which goeth into the inside of the mouth, and is diversly divided into the parts therein contained. The externall branch distributed near the Efferes into the muscles of the chops and the whole skinne of the head. A portion of the branch, reaching unto the face. A portion of it creeping through the temples. A propagation that goeth unto the skin of the Nowle or Occiput. A the veine called Cephalica, or the externall veine of the arm which others call Sumeralis. Muscula superior, a propagation of the Cephalica veine which goeth unto the backward muscles of the neck. The division of this veine which paffeth unto the outside of the blade, and a portion there of runneth between the flesh and the skin. A veine of the skin which attaineth unto the top of the shoulder, and is conformed into the muscle that eleaveth or lifteth up the arm, and into his skin, e. e. a small veine from the Cephalica which goeth in the muscles of the arm. A branch running obliquely from the Cephalica, which conformed into the muscles of the arm. A branch running obliquely above the waist and the outside of the arm. From this branch certain circles are divided into the skin, the chiefe whereof is marked with k. l. the third branch at the wrist which is joyned at l, with the branch of the Basilica marked with x, m. The Basilica which on the right hand is called Hepaticus, on the left hand Lienalis, a. a. a branch of the Basilica going to the head of the muscles of the cubit at a, and to the muscles themselves at a, b, a notable branch of the Basilica running obliquely, and beftowing furcules upon the muscles that issue from the externall protuberation. This branch descended together with the fourth nerve. g. division of the Basilica into two branches, and that is noted with q, is ever accompanied with an artey. A branch of his veine bestowed upon the skin of the arm. A branch of the Basilica which together with the branch of the Cephalica marked with b, makes the mediana or middle veine marked with a. n. a branch of the Basilica going to the inner head of the arm. A branch issuing out of the former that creepeth along unto the wrist and toward the little finger conjoining it selfe with a branch of the Cephalica. A veine running out unto the skinne at the outside of the cubit. A branch, y. A propagation issuing out of a branch of the Basilica marked with i. Lower. A branch of the Basilica x, going to the inside of the Arme. A. The Median or common veine. The partition of the Median vein above the wrist. This division should have beene made above 1. 2. The Externall branch of
of the partition which goeth to the outisde of the head. 8. From which iffue a small branch to the inside, 4. The internall branch under 5, which toward the middle and the ring finger is especially disposed. 9. The vein of the thumb dispersed into the mountaine or hillock, which is conjoynted with the branch noted with 2. 2. The trunk of the hollow vein from which iffue branches unto the parts glued under the liver. 7. The fatty vein called Adiposa superficialis, which goeth unto the fat of the kindes. 8. The two Emmigrants which lead wheezy blood unto the kindes, 8. The two sipermatical veins leading the matter of the feede unto the vehicles. 5. The beginning of the bodyned veinell called vesica suprarum, 3. The veins of the loynes called Lumbaris which are feet in the knots or knees to the rackebones, to the marrowe of the backe, to the muscles that lie upon the bones, and to the Peritoneum. 6. The bifurcation of the hollow vein into the flanker branches, which bifurcation is not unlike 7. Muscula media, the uter propagation of the branch, distributed through the muscles of the rump and the skin of the buttoakes. 6. An inner propagation of the same branch + which goeth unto the holes of the holy bone. 6. The vein Hyperastricus distributed to the bladder, to the muscles of the fundament, and the neck of the womb. 7. A vein arising from the uter branch marked with 7 which is joyned with some branches of the internall vein, near to the holes or perforations of theshare bone. 7. A vein which when it hath passed the share bone distributeth one branch into the cup of the coccyx and to the muscles of that place. 7. Another small branch which runneth under the skinne at the inside of the thigh. 7. The conflitu or meeting of the forefaid veins, with a branch marked with char. 2. and distributed into the legge. 7. The Epigastrico vein, a propagation of the uter branch + perforating the Peritoneum, whereunto also to the muscles of the Abdomen, and to the skinne of the legge. 7. The uter branch of the crurall trunkc divided into the muscles of the coxendix and to the skinne of that place. 2. And this also may be called muscula major. 7. The exterior and inferior which passeth into some muscles of the lower parts, 6. The interior greater and deeper unto the muscles of the thigh. 2.4. The vein called Poplitea, made of two crurall veins divided under the knee, 7. And this also may be called muscula. 7. The division of the Poplitea into an inner branch, and to the skinne of the toes, 7. And to the skinne of the backe of the legge. 7. The third propagation of the Saphena going to the skinne of the wristbone, and unto the same. 4. The fourth propagation of the Saphena going to the skinne of the outer part of the foote, and to all the toes, 6. Saphena minor called muscula internum, the uter branch of the crurall trunkc divided into the muscles of the coccyx and to the skinne of that place. 1.2. And this also may be called muscula. 1. The exterior and interior which passeth into the muscles of the legge, 5. To the muscles of the inside of the legge, and to the great toe. 6. Dividend into divers furcles. 7. The division of the exterior trunkc unto the knee into an externall branch, which along the brace attaineth unto the muscles of the foot, and in internall. 12.13.15.16. Which descending along the outisde of the legge unto the upper part of the foote is cloven into divers branches, and in the backe of the foot is siffed with Poplitea, or the hamme vein. 7.14. The interior branch of the Surall vein which runneth into the backside of the leg. 15. A branch hereof descending to the instide of the heele and the great toe, and is divided into divers furcles. 17. Saphena major siffing out of the internall trunkc at 14, and running through the muscles of the calfe. 18. A propagation hereof derived unto the upper part of the foot; 6.2. Amonging two furcles to every toe. 19, the remain-
Of the Vital parts.

But when it arrives to the basis of the lower part of the head, it is divided into more branches, one whereof is carried to the muscles of the bone Hyoideus, the tongue and the lower part of the tongue (in which place it is commonly opened in squinancies, and other inflammations of the mouth) and to the coat of the nose. Another is carried to the Dura mater, passing on both sides through a hole situated under the bone mastoideus, and besides, ascending to the bone of the back part of the skull, it comes obliquely to the upper part of the future lambdoidea, where these branches meeting together, pass into the reduplication of the Dura mater, dividing the forepart of the brain, that so joined and united, they may make the foramen: the third ascendant is distributed upon the back part and basis of the lower jaw, to the lippes, the fides of the nose, and the muscles thereof; and in like manner to the greater corner of the eyes, to the forehead and other parts of the face, and at length by meeting together of many branches, it makes in the forehead the vein which is called vena recta or vena frontis, that is, the forehead vein. The fourth, ascending by the glandules behind the ears, after it hath sent forth many branches to them, is divided into two others, one whereof passting before, and the other behind the care, are at length spent in the skinne of the head. The fifth and laft wandring over all the lower part of the head, going to the back part thereof, makes which extended the length of the head by the sagittal future, at the length goeth so farre, that it meets with the which meeting is the cause, that a vein opened in the forehead, is good in griefes of the hinder parts of the head, and so on the contrary. But wee must observe that in the cranium of fores, the veinapupis by one or more manifest passages sends some portion thereof to the inner part of the head, so that the veinapupis being opened may make revulsion of the matter which causeth the internall pains of the head.

Three pair of nerves of the fixth conjugation.

Because the Distribution of the arteries cannot be well shewed, unlefe wee violate those nerves which are carried over the Cheft, therefore before we shew the distribution of the arteries, we will as briefly as we can, profecute the distribution of these nerves.

Now the fixth conjugation brings forth three pair of nerves; for passing out of the skull, as it comes downe to the Cheft, it by the way sends forth some branches to certaine muscles of the necke, and to the three ascendant muscles of the Larinx on each side of the Sternum and upon the clavicles. Then the remainder descending into the Cheft, is divided on each side into these three paire. The first pair makes the Ramus costalis. The second, the Ramus recurrens. The third paire, the Ramus sphenochicu. The Ramus costalis, or costall branch is so called, because descending by the roots of the ribs, even to the holy bone, and joining themselves to these which proceede from each of the Vertebrae of the spine, they are carried to all the natural parts.

The Recurrent, or recurrent is also called, because as it were starting up from the chest, it runs upwards against, but these two Recurrent nerves do not run backe from the same place but the right from below the artery, called by some the axillarie, by others Subclavian, and the left from beneath the great artery, descending to the natural parts. But each of them on each side ascending along by the weazon even to the Larinx, and then they intinuate themselves by the wings of the Caragio spheniformis and Thyroydies into the proper muscles, which open and shut the Larinx.

By how much the nerves are nearer the original, to wit, the brainne, or spinae narrow.
marrow, they are by so much the fester. On the contrary, by how much they are further absent from their origin, they are so much the harder and stronger, which is the reason, that Nature would have these recurrent nerves to run back again upwards, that so they might be the stronger to perform the motions of the muscles of the Limbs. But the Stomachus or stomacke branch is so called, because it defends to the stomache or ventriccle. For this branch defending on both sides by the sides of the gullet, sends many branches from it into the inner substance of the lungs, into the coast thereof, into the Pericardium and heart; and then coming into the upper orifice of the stomacke, it is spent in many branches, which folded after divers manners and ways, chiefly makes that mouth or stomacke, which is the seat of the Animal appetitse (as they term it) and hunger, and the judge of things convenient or hurtful for the stomacke. But from thence they are diversely diffeminated over all the body of the ventricle.

Moreover, the same branch sends forth some small branches to the liver and bladder of the gall, giving each part by the way, so much the more as should be sufficiently necessary for it. Here you must note, the stomacke branch defends on each side one, knot to the gullet, and by the way they divide themselves into two branches, each of which goes to the opposite side, that it may there join itself to the nerve of that side. To which purpose the right is carried above the gullet, the left below it, so that these two stomaticke become four, and again these four presently become two.

Chap. XV.

The division of the Arteries.

He Artery arising forth of the left ventricle of the heart, is presently (the two Coronall arteries being first fpred over the substance of the heart) divided into two unequal branches. The greater whereof defends to the lower parts, being distributed, as we formerly mentioned in the third Booke, and 2d Chapter. The lesser ascending to the upper parts, is again divided into two other unequal branches, the lesser of which ascending towards the left side, sends forth no artery from it, until it arrive at the first rib of the Cheft, where it produces the subclavian artery, which is distributed after the manner following.

First, it produces the intercostall, and by it imparts life to the three intercostall muscles of the four upper ribs, and to the neighbouring places.

Secondly, it brings forth the Mammillary branch, which is distributed as the Mammillary vein is.

Thirdly, the Cervicallis, which ascends along the necke by the transverse production to the Dura mater, being distributed as the vena cervicalis is.

Fourthly, passing out of the Cheft, from the backe part of the Cheft, it sends forth to manusfis, whereby it gives life to the hinder muscles of the necke, even to the backe part of the head.

Fifthly, having wholly left the Cheft, it sends forth the two Humeralis, or shouder arteries the one whereof goes to the muscles of the hollow part of the shouder, the other to the joint of the arms and the muscles fituate there, and the gibbous part of the shouder blade.

Sixthly lastly, it produces the Thoracis, which also is twofold, for the one goes to thofe muscles of the Cheft, the other to the Latissimus, as we said of the Vena thoracis, the manner of it makes the Arteria of that side.

The other greater branch likewise attending by the right side, even to the first ribe of the Cheft, makes also the subclavian of that side, which besides those divisions it makes on this side, like those of the left side, hath also another which makes the right at left Carotides or sleepy arteries, which ascending undivided with a conus, the division of the internal branch of the sleepy arteries.
ter is sent to the Pharynx, Larynx and tongue; then entering into the head by the long hole, and the back part of the upper jaw, it sends many branches to the nose, eyes, the inside of the temporal muscles and to the great meninx, or Dura mater; the remainder of this branch going by the side holes of the same, that it might have make the Plexus adnexitella as we see. And then it is spent upon the basis of the brain abundantly diffused over the tenax meninx or Pia mater, and the membrane of the brain, or Plexus choroides. The external or outer branch of the feby arteries goes to the cheekes, the temples, and behind the ears; lastly, it sends a branch into the long muscle of the necke, with which the internal Jugular veine intumesces it selfe into the Dura mater, currying by the hole of the nerves of the sixth conjugation.

The Figure of the Arteries.

A. The orifice of the great Arterie, or the beginning thereof, where it firstlieth out of the heart.
B. Coronaries, so called, because like a crowne it compasseth the basis of the heart.
C. The division of the great arterie into two trunkes.
D. The left subclavian climbing obliquely upward unto the ribs.
E. The upper intercostall artery, or a branch which bestoweth fourue propagations unto the distancies of the lower rib.
F. The necke arterye which through the transverse procusses of the rackebones of the necke, supporteth to the skull, beflowing surclesi unto the marrow and his neighbour muscles.
G. The left Mammary arterye running under the breastbone, and to the navell. It distributeth surclesi to the Mediastinum, the muscles of the breast, and of the abdomen.
H. Muscles, or a branch attaining to the backewen muscles of the necke.
I. The Scapular arteries which goe unto the hollownesse of the blade, and of its muscles that lie thereon.
J. The axillaria which bringeth over the top of the shouder.
K. Humeraria which climbeth over the top of the shouder. L. Thoraca superior, sprinkled unto the forward muscles of the Cheff. M. Thoraca inferior, which paling along the sides of the Cheff, attaine to the broad muscles of the arme. 1. The axillarie artery running out into the arme and affording branches unto the muscles thereof.
O. A branch reaching to the outside of the cubit lying deep. PP. Branches to the joint of the cubit with the arme. Q. the upper branch of the artery running along the Redivus and offering surclesi to the thumbe, the fore-finger and the middle finger. It a surcle creeping unto the outside of the hand and led betwis the first bone of the thumbe and that of the after-writ, supporteth the fore-finger where wec
Contained in the chest.

...
Of the Thymus.

He Thymus is a glandule of a soft, rare, and spongy substance, of large bigness, situated in the furthest and highest part of the Chest, amongst the divisions of the subclavian or Jugular veins and arteries, as yet contained in the Chest, for this use; that it might serve these vessels for a defence against the bony hardness of the Chest, and besides, that as it were by this prop or stay, the distributions of these vessels might become the stronger; for we see that nature hath provided for others, especially such as are the more noble and worthy. This glandule appears very large in beasts and young men, but in such as have attained to full growth it is much lefle, and scarce to be seen.

The substance.

Why the back part of the weazon is ligamentous.

Why the fore part is gristly.

The number and site.

The division of the weazon through the Lobes of the Lung,

Of the Aspera Arteria, the tough Arterie or Weazon.

He Aspera Arteria or Weazon seeing it is the instrument of voice and respiration, is of a gristly, ligamentous, and wholly various substance. For if it had beene one rough, and continued body with the Larynx or throttle, it could be neither dilated, nor compressed; opened, nor shut, neither could it order the voice according to our desire. It is compos'd of veins from the internal Jugular, of arteries arising from the Carotides, and of nerves proceeding from the Recurrent branch, of a double membrane, of which the extremall comes from the Peritenum; the internall, which is the stronger and woven with right fibers, from the inner coat of the mouth, the which is common with the inner coat of the oesophagus or gullet. And also its confines of round gristles, yet not drawn into a perfect circle, compos'd in manner of a channel, and mutually joined together in order, by the ligaments that proceed from their sides and ends.

These same ligaments perfect the remnant of the circle of this Aspera Arteria, on that part next the gullet, which is thought to be done to this end; that that softness of a ligament, might then give place, when we swallow harder and greater gobbets of meat. Of the two sorts of ligaments which are annexed to the gristles of the weazon, some tie and fasten together the rings or circles, which give means both to it, and these circles to be drawn out in length; otherwise bring these gristles into a perfect circle, which also yeeld them means of dilatation. These ligaments cover the inner superficies, but the gristles are placed without, to resist the incursion of external injuries. But wee must note, that by this communion of the inner coats of the weazon and gullet, wee recea this benefit in the commodiousness of the action, that one of these parts being depressed, the other is lifted up, like a rope running in a wheel or pully. For thus whilest the gullet is depressed to swallow any thing, the weazon is lifted up; and on the contrary when the stomack rizes up in vomiting, the weazon is depressed. It is onely one, and that seated between the Larynx (from which it takes its beginning) and the Lungs in which it ends; first dividing it felle into two large branches, the right and the left, and besides each of these entering into the substance of the lungs, is againe divided into two others; to each of the Lobes one; and to conclude, thefe be subdivided into infinite others, through the substance of the Lobes.

All these branches are gristly even to the ends. They are situate betwene the ends of the Arteria ventra, and the Vena arteriosa, that the entrance of the aire into the heart by the arteria ventra might be speedier, as also the passage out of the vapour, by the vena arteriosa. Thus it hath connexion with thefe in the ends, oruartost parts thereof, but by the other parts compassing it, with the members from whence it takes
taken. The temperament thereof is cold and dry. The action is to carry the air to, and vapours from the lungs, that by dilating, but this by pressing the gristles together.

The Figure of the Aorta Arteria or Wcazon.

A. The orifice of the great artery cut from the heart, 
   aa, the coronal arteries of the heart.
B. C. D. the division of the great artery into two trunks, the descending C, the ascending D, 
   E. the left axillary, or subclavian artery. 
   F. the right axillary or subclavian artery. 
   G. the right Carotis or Temple artery. 
   H. the left Carotis. 
I. the trunk of the rough artery or weazon. 
   K, L. The division of the rough artery into two branches, of which the right goes into the right, and the left into the left side of the lungs; which branches are again subdivided into many other. 
M. The head of the Rough Artery called the Larinx or Throttle. 
N. N. Certain Glandules or Kernels at the root ot it. 
O. O. The right and left Nerves of the sixth and seventh conjugation. P. A Revolution of small branches of the right nerve, to the right Axillary Artery. Q. Q. The right Recurrent Nerve. 
R. A revolution of small branches of the left nerve unto the descending trunk of the great Artery. S. S. The left Recurrent Nerve.

CHAP. XVIII.

Of the Gullet.

The Oesophagus, or Gullet which is the passage of the meat and drink, is of a middle substance between the flesh and finewes, because it consists of one nervous membrane and another fleshy. The nervous is placed the innermost, and is continued to the inner Coat of the mouth even to the Lipps (whereby it comes to passe, that the Lipps tremble in diseases which are ready to be judged by a critical vomitting and to the inner part of the Aorta Arteria; it consists of right Fibers for the attraction of the meat, which we see is sometimes so quicke and forcible in hungry people, that they have scarce time to chaw it, before they find it, to be plucke downe, as it were with a hand. The fleshy Coate placed without is woven with tranverse fibers, to halten the compen.
Of the Vitall parts &c.

The magnitude.
The figure.

Why we cannot sip and blow at one time.

Temper and action.

The going of the meat into the stomacke, and for expulsion in vomiting and breaking of winde. These two coats are continued with the two coats of the stomacke, and have the like fire. Besides, the Gullet hath these parts composing it, as a veine from the Gate and Hollow ascendent veine, a nerve from the fixe conjuration, an Artery from that which creeps alongst the botome of the stomacke with the vena Coftrica, or else from the Arteryes ascending the hollow part thereof; but also besides all these veffels it may have a third coat from the membrane investing the ribs, or Pleura. The magnitude of the Gullet is large enough, yet some be bigger, some lesse according to the variety of bodys. The figure of it is round, that so it might be more large to swallow meat, and lesse subject to offence. It is placed betwene the backe bone and the weazon from the roots of the tongue even to the stomacke. But as it descends alongst the backe bone, when it comes to the fourth Vertebre of the Cheefe, it turns to the right side, to give way to the great Artery Aorta, and the descendent Artery, then it turns to the left side to the stomacke, or mouth of the ventricle. Nature hath fastened it to the Diaphragma with strong membranous eyes; left that, if't had lain upon the Artery it should have hindered the passage of the vitall spirit to the lower parts. It is onely one and that tied to the forementioned parts, both by its veffels and membranes. It is of temper rather cold than hot, as all those parts, which are more nervous than fleshy, are. The Action thereof is to draw and carry downe the meat, and to cast forth such things by vomit as trouble the stomacke. Here you must note, that whilst we swallow downe, the Gullet is drawn downewards, and the weazon upwards, which is the cause that wee cannot sip and blow, swallow and breathe together at the same instant, which wee must thinke to happen by Gods singular providence, to whose name be glory for everlastin g, Amen.

The End of the fourth Book.
THE FIFTH BOOKE OF THE ANIMALL
parts contained in the Head.

Chap. I.

A General description of the Head.

Aving hitherto declared two general parts of mans body, that is, the Natureall and vitall, it is now fit to betake our selves to the last, that is, the Animall, beginning with the head.

Wherefore we will first define the head, then divide it into its parts; thirdly describe each of these parts; fourthly demonstrate them after the order they offer themselves to our sight in dissection.

The head therefore is the seat of the senses, the Palace and habitation of reason and wisdom, from whence all actions and commodities arise. It is seated above the rest of the body, that the Animall spirit from thence, as from a tower, may govern and moderate the whole body, and performe all actions according to the prescription of nature.

By the head we understand all that which is contained from the Crowne of the head to the first vertebra of the neck.

The best figure of the head is round, lightly flatted on each side, extraborating something to the fore and hinder part thereof. For from hence is taken an argument of the goodness of the sense, on the contrary, those which are exactly round, or acuminate, and sharp towards the top, are not thought good. The head is divided into the face, forehead, temples, the forepart, the crowne and hinder part.

The face we understand, whatsoever is contained between the Eye-browes and the lower part of the chin. By the forehead, all the space from the eye-browes even to the Coronall future. By the temples, whatsoever is hallowed from the lesser Corner of the eye, even to the ears. By the forepart of the head, whatsoever runs in length from the top of the forehead, or the Coronall future, even to the future lambdoides, and on each side to the os petrosum, the fomy bones, or scaly figures. By the Crowne we signify a certaine point exquisitely in the midst of the Sagittall future, which is sufficiently knowne. By the Occiput or hinder part of the head, that which is terminated by the future lambdoides, and the first vertebra of the neck.

Of all these parts there be some simple, some compound, besides some are containing
The containing parts of the head.

The parts contained.

What the hair is.

The use there of.


daining some contained. Of the containing some are common to all the parts of the head, as the skinne, the fleffy panicle and pericranium; others are proper to certaine parts, as the fleffy panicle to the neck, face, forehead, and skinne covering the Cranium, the common coat of the muscles to the fat and face; The skull and both the Meminges to the braine.

The parts contained are the substance of the baine, the four ventricles, and the bodyes contained in them, the nerves, the mamillary procессes, the Plexus Choroides or Reto Admirable, the Glandula Basiliaris, and others of which we will speak hereafter.

Wee must now speake of the containing parts beginning with the skinne; for the order of teaching requires that we take out Excerpium from the more simple, but first we will speke some thing of the haires.

What the hairis.

The use there of.

The hair is nothing els than an excrement generated and formed of the more grosse and terrene portion of the superfinitis of the third confection, which could not be wafted by intellible tranpiration. The benefite of it is, that consuming the grosse and fuliginous or footy excrements of the braine it becomes a cover and ornament for the head.

This hair of the head and eye-browes have their originall from the first conformation of the infant in the wombe, the rest of the hairies of the body arife and grow forth as the body grows and becomes more dry, of which fort are the hairies which cover the Chin, armeholes, groines and other parts of our bodyes.

CHAP. II.

Of the mofifulous skinne of the Head, (commonly called the hairy scalp) and of the Pericranium.

The skinne which covers the Scull, and is covered with the bairr, is fare more fleffy, thicke, hard and dry than any other part of the body, especielly which wants hair. The skinne hath almost the like condition of quality as those parts have, which it doth simply cover, but is as it were loft in them, or growne into one with them, as in the lips and forehead with the fleffy panicle, wherefore it is there called mufculous; in other places it adheres to the griftles, as on the fides of the noftrilles and corners of the Eyes, whereupon it is there called griffily.

It hath connexion with the Pericranium because joyned to it, it receaves nerves from the first and second vertebra of the necke, and from the third conjugation of the braine which are dissinicated through all its substance, whereby it comes to paffe, that the wounds, contusions, and impostumes that happen in or upon this skinne, are not to be neglected.

The Pericranium (but I suppose it should be the Perifismus) is a moft thin membrane, which next and immediately covers all the bones of the body, and this on the head is called by a pecuari name the Pericranium by reason of the excellency of the Cranium or skull, in other bones it is termed the Perifismus. And as the Pericranium takes its originall from the Craffa meninx propagating it felle by certaine fringes or thredes sent forth by the futures and holes of the skull, so all other membranes of the body have their originall either from this Pericranium, or the Craffa meninx, sending forth their productions, as well by the holes or passages of the head, as by thofe of the spinal marrow or back bone it felle, even to the Holy bone.

Of which this is an argument, for in what part foever of the body a membrane is hurt, the hurt or fene thereof comes to the Craffa meninx. For tho' those who have but their little Toe hurt when they fakee, or cough, perceive an increase of their paine, by the passage thereof to the braine.

The vie of this Pericranium is to cover the skull, and to give notice of things hurtfull, by the power of the quick fene which is enuiled withall, and the Perifismus doth the like in other bones. Besides it suffittes and fattiens by the futures the Craffa meninx to the skull; leaff it should fall by reacon of its weight upon the Pins mater, and so...
Chap. III.

Of the Sutures.

He Sutures do few or fasten together the bones of the skull; these be 5 in number. Three are true and legitimate, two false and spurious.

The Coronal, the first of the true sutures is seated in the forepart of the head, defending downwards overwhart the forepart of the head to the midst of the temples; it is so called, because Corolla, that is, wreaths, crowns or garlands, are set upon that place.

We must think the same of the other membranes of the body, which thing is very notable in the solution of the continuity of the membranes.

So one cutt, I mean cutten,

The second future Lambdoides, is so called because it represents this Capital greek letter Lambda, A. You must understand this description of the futures, not as it was, but as for the greater part to be thus. For there be some skulls that want the foremost future, whereas, the hind, & sometimes such as have none of the true futures, but only the false & spurious. But also you shall sometimes find the Sagittal to run to the nose.

And oft times there be three or four sutures in the backe part of the head, so that indeed the number of the futures is not certain. Which also we find observed by Cornelius Celsius, where he writes, that Hippocrates was deceived by the futures by chance, for that he conjectured that the bones of the backe part of the head, were broken, because his Pro6e thrust thru the roughnes of the second future Lambdoides, staid as at a Cleft made in the bone by a stroke.

The other two are called the false, stony and scaly futures, by reason they are made by a sealy conjunction of the bones, but not by a toothed saw or comb-like connexion. But if any ask, why the head consists not of one bone, that so it might be the stronger: I answere it, that jo it might be the safer both from internal and external injuries. For the skull being as it were the tunnel of the thinay of this humane fabric, to which all the smoky vapours of the whole body ascend, if it had been composed of one bone, these vapours should have had no passage fourth.

Therefore nature hath otherwise compendiously provided for such as want sutures. For it hath made one or two holes, some two fingers breadth from the Lambdoides through which the Vena papoa enters into the skull, and they are of that largeness that you may put a points ragge into them, that so the vapours may have free passage forth, otherwise there would be danger of death; thus nature hath beene careful to provide for man against internall injuries and in like manner against externall, for it hath made the head to consist of diverse bones, that when one bone is broken the other may be safe, the violence of the stroke being stayed in the division of the bones.

Whereby you may know, that if the skull chance to be broken in the opposite side to that which received the blow, that it happens either by reason of the defect of Sutures, or else because they are imperfect, and too firmly closed, otherwise it is impossible, such fractures should happen by reason of the separation of the bones, which breaks the violence of the blow that it can go no further.

And certainly as it is rare to find a skull without Sutures, so it is rare to find such kind of fractures. Therefore Chirurgions must diligently observe the Sutures and site of them, lest they bee deceived and take them for fractures, or unawares apply a Trepan.
Why we must not apply a Trepian to the Sutures.

Trepian to them, whence by breaking the veins, arteries and nervous fibers by which the internal parts communicate with the external, there may ensue increase of pain, a violent defluxion of blood upon the Cerebra meningis, and the falling thereof upon the brain, (the fibers being broken by which it sticks to the Periosteum) and so consequently a deadly interception of the pulsation of the Brain.

Chap. IIII.

Of the Cranium, or Skull.

Cranium, or Skull covering the braine like an Helmet, is composed and consists of scaven bones, of which some are more dense, thick and hard than other some. The First is the Os occipitale, or Nowle bone seated in the back part of the head, more hard and thicker than the rest, because we want hands and eyes behind, whereby we may keep or save our selves from falling.

This bone is circumscribed, or bounded by the future Lambdoids, and the Os basilaris. The Eminencies and as it were heads of this bone are received into the first vertebra, and the bone, next to it, found a great cavity under the upper part of the eye-brwes, filled with a glutinous, gross, viscid and white matter or substance, which is thought to helpe to elaborate the aire for the sense of smell.

The second bone of the skull is in the fore part, and is called the Os sphenoidale or Os frontale the forehead bone, it hath the second place in strength and thicknesse. It is bounded by the Coronal future, and the ends of the wedge bone: in this forehead bone there is often found a great cavity under the upper part of the eye-browes, filled with a glutinous, gross, viscid and white matter or substance, which is thought to helpe to elaborate the aire for the sense of smell.

Chirurjons must take speciall notice of this cavity, because when the head chanceth to be broken in that place, it may happen, that the fracture exceeds not the first table, wherefore they being ignorant of this cavity, and moved with a false perswasion that they see the braine, they may think the bone wholy broken, and to prestle the first table of the bone, without any need at all, and with the manifest danger of the life of the patient.

The third and fourth bones of the skull are the Os parietalia, or Bregminis, having the third place of densiety and thicknesse; although this densiety and thicknesse be different in diverse places of them. For on the upper part of the head, or crowne, (where that substance turnes not to a bone in children until they have all their teeth, so that it softens in touching, and through it you may see the beating of the braine) these bones are very tender, so that oft times, they are no thicker than ones naile, that so the moist and vaporous excrements of the braine, shut up where the greater part of the braine resides, may have a freer paffage by the Braines Diahole and Syfolae. These two squire bones are bounded above with the Sagittal future, below with the scaly, on the forepart with the coronall, and on the hind part with the Lambidoues.

The fifth and sixth bone of the skull are the two Os petrofa flaty or scaly bones which are next to the former in strength. They are bounded with the flatte or battard Suture, and with part of the Lambidoues and wedge bone.

The seaventh is the Os sphenoide, basilaris or Cuneiforme that is the wedge bone. It is called Basilaris, because it is as it were the Bases of the head. To this rest of the bones of the head are fistly fastened in their places. This bone is bounded on each side with the bones of the forehead, the flaty bones, and bones of the Nowle (and palate). The figure represents a Batte, and its proceeds her wings.

There is beside the another bone at the Bases of the forehead bone, into which the mammillary procusses end: the Greeks call it Epistrophe, the Latines Cranium and Sphatumin, the Spongy bone, because it Hath many holes in it yet perforated in a direct paffage, as in a vaine, but winding and ambrosius, that the aire should not be by the force of attraction presently leap or ascend into the braine, and affect it with its qualiies,
the Head.

163

contained in the Head.

There are besides also fixe other little bones laying hid in the Rony bones, at the hole, or Auditory pale, on each side three, that is to say, the Bones of Avnill, the Madeolour or Hammer, and the Ear,

stages or chiron, because in their figure they represent those three things, the use of these we will declare hereafter.

But alfo in some skuls there are found some divisions of bones, as it were collected fragments to the bignesse almost of ones thumbe, furnished and distinguished by their proper commilures, or futures, which thing is very fit to be known to a Chyurgion in the use of a Trepans. For it may give a conjecture hereof, whilst he separates the Periconium from the skull, for the Periconium is with greater difficulty plucked away from the futures, because the Crofha menium hath friater connexion therewith by his nervous fibers sent forth in such places. The Skulls in women are fatter and thinner than in men, and in children more than in women, and in young men more then in men of a madding age. Also the the Ethiopians or Blackamoors, as alfo all the people inhabiting to the South, have their cufules more hard and composed with fewer futures. The Skuls in women are fatter and thinner than in men, and extraordinary in children more than in women, and in young men more then in men of a middle age.

Therefore as it is written by Hippocrates, such ashave their Skulls the fatter, the Symptomes in fractures are more dangerous and to be feared in them. But the skull by how much the fatter it is, by fo much it more easily and readily yields to the perforating Trepans. Moreover in some skuls, there be bunches standing out besides nature, made either round, or cornered, which the Chirurgion must observe; for two causes; the first is for the better consideration of a blow or fracture. For in these bunches, or knots, the solution of the continuity cannot be, if it feeme to be stretchd in length, but that the wound must penetrate to the inner parts. For in a round body there can be no long wound; but it must be deep, by the weapon forced the deeper; because as a round body touches a plane but once only in a prick or point, so what-ever falls only lightly or superficially upon it, only touches a point thereof. But on the contrary a long wound must be upon a plane surface, which may be but only superficial.

Another caufe is, because such bunches change the figure and fite of the Sutures, and the Chirurgion must note that the skulls hath two tables, in the midst whereof the Diaph is which is a fpongy fubftance into which many veins and arteynes & a certaine fcllyneffe are inferred, that the skull should not be fo heavy, and that it might have within it felle provision for the life thereof; and laftly that there might be ferrer passage out for the fuliginous vapours of the braine.

The upper table is thicker, denfer, stronger and smoother than the lower. For this as it is the fonder, so it is the more unequall, that it may give place to the internal veins and arteynes (which make a manifeft impression into the second table on the inside thereof) from which branches enter into the skull by the holes which containe the eyes. Which thing fastens the Crofha menium to the skull, and is therefore very worthy to be observed.

For in great concussions when no fracture or slittee appears in the skull by reason of the great concussion or thinkeing of the braine, these veins are often broken, whence happens a flux of blood between the skull and membranes, and lastly death. But it is in the Chirurgion take good heed to the colder and fott fubftance of the Diaph, that when he comes to it, having pulled the firt table, he may carefully use his Trepans, lest by leaning too hard, it run in too violently, and hurt the membranes lying underneath it, whereon concussion and death would follow. To which danger I have found a remedy, by the happy invention of a Trepans, as I will hereafter more at large declare in handling the wounds of the head.

The three bones of the Auditory palle.
Of the Meninges, that is, the two membranes called Dura Mater and Pia Mater.

The Crassa meningis is one of the first and principal membranes of the body; it goes forth by the futures and the holes of the nerves that proceed out of the skull; and it passes forth by the bone Ethmoidis perforated for that purpose, to carry fluxes to the Brain, and purge it of excrementitious humors. This fame Crassa meningis invests the inner coat of the Nose; also it passes forth of the great hole through which the spinal marrow passes, vested with this Crassa meningis, with all the nerves and membranes. For which cause, if any membrane in the whole body be hurt, by reason of that continuation which it hath with the Meninges, it straight communicates the hurt to the head by conflux.

The Crassa meningis is thicker and harder than all other membranes in the body; whereupon it hath got the name of the Dura mater, besides also it begins, produces, and defends the other membranes.

The use of it is to involve all the braine, and to keepe it when it is dilated, that it be not hurt by the hardnesse of the Skull. For the course of nature is such, that it always places some third thing of a middle nature, betwixt two contraries. Also the Crassa meningis, yields another commodity, which is, that it carries the veins and arteries entering the Skull for a long space. For they infinuate themselves into that part, where the duplicated or folded Meninges separate the braine from the Cerebellum, and so from thence they are led by the sides of the Cerebellum, until they come, as it were, to the toppe thereof; where being united they infinuate themselves into that other part of the Crassa meningis, where in like manner being duplicated and doubled, it parts the braine at the top into the right and left; these united veins run in a direct passage even to the fore-head, after the manner of the Sagittal future; They have called this passage of the mutually infolded veins, the Torcular, or Press, because the blood which nourishes the braine is pressed and drops from thence by the infinite mouths of these small veins. Therefore also here is another use of the Crassa meningis, to distinguish the braine by its duplication, being it suffices it's selfe deep into its body, into two parts, the fore and hind, and presently to separate the same into the right and left, that one part being hurt, the other may remain safe and found, performing its duty to the creature, as we see in some that have the Palsy, hath of the Meninges, observed that this Meningis was double, and verily I have found it true by my owne sight.

The other Meninges or membrane of the braine, called Pia mater, is most slender interschased with divers veins and arteries, for its own and the braines nourishment and life. This doth not only involve the Braine, as the Crassa meningis doth, but also more deeply penetrates into the infraductus passages thereof, that it may every where joyn and bind it to it selfe, not easily to be drawn from thence, by many small fibers whereby it defends even to the cavities of the ventricles thereof. Wherefore you must see it absolutely in this wise; have mentioned, and not plucke it away unlesse with the substance of the Braine.

These membranes when they are hurt or afflicted, cause grievous and most bitter torment and paine, wherefore I dare say, that these membranes are rather the authors of sense than the braine it selfe, because in diseases of the Braine, as in the Leathargie, the party affected is troubled with little or no sense of paine.
Now followeth the Braine, the beginning of the nerves and voluntary motion, the instrument of the first and principal faculty of the Soule, that is, the Animall and Rational. Man hath this part in greater plenty then any other Creature, for it almost fills the whole Scull. But if it should have filled it all, the Braine could not be moved, that is, dilated and contracted in the Scull. It is of a cold and moist Temperature. The laudible temper of the braine is knowne by the integrity and perfection of the internall and externall senses, the indifferency of sleepe and waking, the Maturity or ripeness of judgment, and constancy of opinions, from which, unless it meet with better and more probable, it is not easie to be moved.

The first figure of the head, as it appears when the scull is taken away.
The second figure shewing the Braine the scull and Dura mater being taken off.

AA.BB. The Dura meninx or thicke membrane.
CCC. The third sinus of this membrane.
DD. The course of the veines as they runne through the membrane, or the second veine of the braine.
EE. The first veine of the braine.
FFF. Certaine final veines which perforate the scull and reach to the periocranium or Scull-skin.
GGG. Fibres of the Dura meninx passing through the Coronall Suture, which fibres make the Pericranium.
HH. Fibres passing through the sagittal Suture.
II. Others passing through the Lambdall Suture.
K. A knob which ueth to grow to the sinus of the Scull.
L. A cavity in the fore-head bone.
M. The Scull.
N. The Pericranium or Scull-skinne.

Fig. 2.

AAA. A part of the Caffe meninx dividing the braine. BB. the third sinus of the same Caffe membrane opened. CC. the beginning of the veisels out. of the third sinus into the Pia mater. DDD. the propagation or branches of these veisels. EEE. the Pia mater or thin meninx immediately compat-
ffing the braine. FFF. Certaine vesseles running through the convolutions or branches of the braine. GGG. Certaine branches of veins running through the sides of the dura meninx. HHH. The thicke membrane reflected downward.

You shall know the braine is more hot, by the quickness of the senses and motions of the body, by shortness of sleep, the sudden conceiving of opinions and change of them, by the slippery and failing memory, and lastly by easily receiving hurt from hot things, as the Sunne and Fire. Such as have a cold braine, are slow to learning, and to conceive other things, but they do not easily put away their once conceived opinions. They have short motions, and are sleepie. Those who have a dry braine, are also slow to learne; for you shall not easily imbrace any thing in dry bodies, but they are most constant retainers of those things they have once learned, also the motions of their bodies are quick and nimble. Those who have a moist braine do easily learn, but have an ill memory, for with like facility as they admite the species of things and imbrace them in their minds, doe they suffer them to slide and slip out of it againe. So Clay doth easily admit what Character or impression forever you will, but the parts of this Clay which easily gave way to this impression, going together againe, mixes, obliterate and confounds the same. Therefore the sense proceeding from a cold braine are dull, the motions slow, the sleep profound.

The Action of the braine is to elaborate the Animal Spirit and necessary sense serving the whole body, and to subject it solely as an instrument to the principal faculties, as to reason. The braine is twofold, the fore and hinde. The hinde by reason of its smallness is called the Cerebellum, (the little or After-braine). But the fore by reason of its magnitude hath retained the absolute name of the braine. Againe this fore-braine is two-fold, the right and left, parted by that depression, which was formerly mentioned, of the Meninges into the body of the braine. But this division is not to be here so absolutely taken, as though the Braine were exactly divided and separated into so many parts, but in the sense, as we say the Liver and Lungs are divided a pretty way, whereas at their Bases they have one continued body. The outward surface of the Braine is soft, but the inward hard, callous and very smooth, when on the contrary, the outward appears indented and unequelle with many windings, and creased as it were with many worme like foldings.

CHAP. VII.

Of the ventricles and mammillary processses of the Braine.

The substance of the braine is porous and sweats forth blood. The four ventricles thereof.

Or the easie demonstration of the ventricles of the braine, it is convenient you cut away a large portion thereof, and in your cutting observe the blood sweating out of the pores of it. But besides, it is fit you consider the spongious substance by which the excrements of the braine are heaped up, to be presently strained out, and sent away by the hollow passage. In the substance of the braine you must observe 4 ventricles, mutually connected by certaine passages, by which the spirits endeared with the species of things sensible, may goe from one into another. The first and two greater, one on each side are placed in the upper braine. The third is under them in the middle part of the braine. The fourth and last at the fore side of the Cerebellum, towards the beginning of the spinall marrow. The two former are extended the length way of the braine in the forme of a femicircle, whose hornes looke or bend outwards. They are spacious and large, because it was meet the Spirits contained there together with their excrements, should be there purified and cleaned, but in other ventricles, the pure and already elaborate spirits are onely received. These ventricles are white and smooth in their inner superficies, but that on each side they have an exuberancy at the midft of the femicircle, situate at the bases.
The Third Figure represents the Cerebellum with the

wormy processes separated from it.

AB, The right and left part of the After-braine.
CD, The anterior and posterior regions of the middle part of the After-braine.
E, The anterior wormy process.
F, The posterior wormy process.
GH, In this place the After-braine did grow to the spinal marrow. H, The cavity in the spinal marrow maketh the forth ventricle.

The Plexus Choroides is nothing else, but a production of the Pia mater diversely folded with the mutual implication of veines and arterys woven in the forme of a net. These veiels are of magnitude and capacity sufficient, both to yield life and nourishment to that particle to which they are fastened, as also for the generation of the Animal spirits, as which take fit matter from the veines threathed fourth into this same Plexus, the hinde artery and veine Tortular, and also from the aire entering into the braine by the mamillary processes. But the mamillary processes are certain common waies for conveyance of the aire and smells into the braine and carrying of excrements from the braine.

For thus in them who have the Catarrhe and Coryza or pofe, neither the aire, nor smels can penetrate into the braine; whence frequent fheefings ensue, the braine strongly moving it felf to the expulsion of that which is troublesome to it. But of the excrements of the braine, whether bred there, or proceeding from some other part, some are of a fumeid and vapisour nature which breathe infenibly through the Sutures of the skull; Others are groffe and viscid, of which a great part is expelled by
by both these productions, or through each of them. For thus in the pose you may see some who have one of their nostrils stop'd, the other running, and some who have both obstructed. The most proper benefit of the two first ventricles of the brain is to entertain the Phantastie as in a convenient seat and habitation, seeing the mind there estimates and disposes in order the species of things brought in from the external sense, so that to it may be a true judgement of them from reason which resides in the middle ventricle.

The third ventricle is seated between the hindermost extremities of the former ventricles, and the last ventricle of the Cerebellum. In this five parts present themselves to our consideration, that is the Falloides or Arch, the Comarium, or pine Glan-
dule, the Buttocks, worm-like productions, the Balon and passage which from this middle into the last and hindermost ventricle. The Falloides or arch is nothing else, but the cover of the middle ventricle, resembling a rook born up with three flaves or pillars, the one whereof is extended to the hole under the Septum lucidum, the two other on each side one, look towards the back part of the brain. This is the reason of this figure which is outwardly convex and inwardly concave, to wit, that there might be free space for that motion which the Animal spirit inwardly produces, and besides that it might more easily sustain the burden of the brain lying upon it. For an arched figure is the most convenient of all other to sustain a weight.

The Comarium or Pine glandule, is a small Glandule of the same substance with the braine, round and somewhat long, like a pine Apple, from whence it hath the name, this Glandule is seated over against a small hole which descends to the lowest ventricle. It hath this use, to strengthen the division of the veesells led thither with the production of the Pia mater for the generation of the animal spirits, and the life and nourishment of the brain.

The Buttocks are subjected or placed under this Glandule, that is, bodies of a solid and white substance drawn out in length like a child's buttocks, especially in beafts, and chiefly in the fucose. These buttocks have such a solid substance, that for they may keep open and free the passage, or channel that runs down from the midle to the lower ventricle, by means of which the Braine participates with the Cerebellum.

The worme is a production of the Cerebellum or After-braine, to wit a portion of the same being in the top or beginning and as it were in the entrance thereof, being like many little circles or wheels mutually knit together by slender members, and it is so called because it resembles those thick white worms which are found in rotten wood. It doth as it were perform the office of a porter to the formerly mentioned passage, that it may give way and entrance into the Cerebellum to a necessary quantity of spirits, when need requires; lest that, if they should rush with a sudden violence into the Cerebellum, they might confound the imprinted notions of things to be remembered.

The Balon or Balonis a passage appointed for the carrying away of the grosse excrements by the palate, and is so called because it hath the similitude and use of a ballon or Tunnell; it descends from the third ventricle into the Glandule which is seated between the proceffes of the wedge-bone called the saddle thereof, as you may perceive by putting in a spatheine. Now there remains the last of the five parts proposed to our consideration in the third ventricle, that is, the Channel or passage running from this third ventricle into the fourth, for the use formerly mentioned.

This Channel descending in its original from the Balon, goes from thence under the buttocks into the last ventricle, the Menings being perforated; which that you may know, it is for you put the end of a spatheine through it. The benefit of the third ventricle is, that it may be a Tribunal or judgment seat to the Reasoning faculty, when the mind will draw conclusions from things seen.

The fourth ventricle is seated in the place we formerly mentioned; it is less than the rest, but more solid; lest as that which was not to receive the spirit before it was purified, and eldented from all impurities; but more solid that it might contain the safer. The use thereof, to be as a Treasury and store-house of the opinion, and
and judgments which reason shall decree, that when neede requires, wee may fetch and draw them from thence as laid up in store. I know Galen, and the Greeke Physisions have not so distinguished in places the three fore-mentioned facultyes, but have written, that they all are all over confused through the whole substance of the braine, which opinion also Fernelius in his Pathologis hath renewed. Yet I had rather follow this opinion, as commonly received and celebrated by the Arabian Physisions.

The Mammillary processes are the instruments and passages of smelling, being of the same substance with the braine, and like nerves, which runne out from the hinde horns of the upper or foremost ventricles of the braine to the Ethmoiades and spongy bones of the nofe, that hence they may receive the divers kinds of stmes, and carry them into the Braine, But although they be like nerves, yet they are not accounted nerves because they go not out of the skull.

The Fourth and Fifth figures of the Braine.

The use of the Mammillary processes.

Figure 5.

R R R, The lower superficies of the callous body reflected.
S T V, The triangular superficie of the Fornix or Arch.
X X, The lower part of the partition of the ventricles continued with the Arch.
T Y, The upper part of the partition continued with the callous body.

Figure 6.

A A A A, The lower superficie of the Arch.
B C, Two corners of the Arch, by which it is continued with the ventricles.
D E, The right and left ventricles.
F G, Arteries climbing up from the slyppie arteries through the lower side of the ventricles for the forming of that complication of vessels which is called Plexus choroides.
H, A vessel issuing out of the fourth sinus under the Arch, and passing into the third venticle.
I K L, The division of this vessel, a part whereof goeth to the right venticle at X, and another to the left at L.
M N, The Plexus choroides made of the artery F G, and the vessel H.
O O, Small veins passing thorough the ventricles of the braine, produced from the vessels X and L.
P, Other veins arising from the same, dispersed without the ventricles into the Piamater. Q, A passage from the third ventricle unto the Fornix or Tunnel.
The Sixth figure of the Brain.

XI.

XII.

Figure 10.

A A, Parts of the spinall marrow cut from the brain.

B C, The places where this marrow did grow unto the brain.


From A to K, A part of the third ventricle going to the forth, under the Testicles.


Chap. VIII.

Of the seven conjugations of the Nerves of the Braine, so called, because they always from the Nerves conjugated and doubled, that is on each side one.

What a Nerve or Sinew is.

Its substance. Whether the nerves have a third name, bran from the Ligaments of the Periosteum.

Their magnitude. Their figure.

Their use.

Their number.

The first conjugation of nerves.
of the braine, in the middle way before they goe out of the skull meet together crostwise like the Iron of a Mill (which is fastened in the upper stone) going into one common passage with their cavities not visible to the eye, that so the spirits brought by those two nerves may be communicated, and they are mutually joind and meet together so, that being driven back from one eye they may file backe into the other.

An argument whereof may be drawn from such as aime at any thing, who shutting one of their eies, see more accurately, because the force of the neighbouring spirits unit'd into one eye is more strong than when it is dispers'd into both. This conjugation when it comes into the glassie humour, is spent in the structure of the nerike coate which contains this humour on the backe part.

The second conjugation goe into many partes, at its paffing forth of the skull, and in the boombre of the circle of the eie it is distribut'd into the feaven muscles moveing the eies.

The Seventh figure showing the eight conjugations of the Nerves of the braine.

FIG. i.

A A 1.2. The braine.
B B 1.2. The After-braine.
C C 1.2. the swelling of the braine which some call the mammillary processis.
D D 1.2. the beginning of the spinall marrow out of the Basis of the braine.
E E 1.2. a part of the spinall marrow when it is ready to issue out of the skull.
F F 1.2. the mammillary processis which serve for the fence of Smelling.
G G 1.2. the opticke nerves.
H H 1.2. the conjion or union of the opticke nerves.
I I 1.2. the coat of the eye whereby into the opticke nerves is extended.
K K 1.2. the second paire of the fine nerves, ordin'd for the motion of the eyes.
L L 1.2. the third paire of fine nerves, or according to the most Anatomists, the fether roote of the third paire.
M M 1.2. the fourth paire of fine nerves, or the greater roote of the third paire.
N N 1.2. a branch of the third conjugation derived to the musculous skin of the forehead.
O O 1.2. a branch of the same to the upper jaw.
P P 1.2. another into the coat of the nostrils.
Q Q 1.2. another into the temporal muscles. 
R R 1.2. a branch of the fourth conjugation crumpled like the tendril of a vine. 
S S 1.2. a branch of the same spreading into the upper teeth and the gums. 
T T 1.2. another of the same to the lower jaw. 
U U 1.2. a circle of the branch T to the lower lip. 
V V 1.2. another circle from the branch T to the roote of the lower teeth. 
W W 1.2. another circle from the branch T to the mouth.
The Animall parts

The Animall spirit is made of the vitall, sent from the heart, by the internall sleepy Arteryes to the braine. For it was requisite that it should be the more elaborat, because the motion of the Animall is more excellent than that of the vitall, nature hath framed a texture of Arteryes in many places running croffe one another, in the forme of a Net diversely turned, (whereupon it had the name of the wonderfull Net) that to the spirit by longer delay in these Labyrinthian or maze-like turnings, might be more perfectly concocted and elaborate, and attaine to a greater fitness to perform the Animall function.

This wonderfull Net (sciturate at the sides of the Apophyses divisorv or productions of the wedgebone, is twofold; that is, divided by the pituitary Glandule which is sciturate.
situate between the said Apophyses Clinoideae, having the wedgebone lying under
them, next to the Cossa Meninae, being perforated on the right and left side, next to
which ly bones as rare as a sponge even to the Pallate, by which the Phlegm is
purged by the mouth and nose; and thence, I think, that spittle flowes, which
such as have a moist braine, continually spit out of their mouth.

The Eight figure of the braine.

A, The Braine.
B, The Cerebellum or after-braine.
C, A process of the brain, but not that which is cal-
led Mamillaris.
D, The marrow of the back as it is yet within the
skull.
E, The Mamillary process or instrument of
smelling.
F, The optic nerve.
G, The corne of the eye in to which the optic
nerve is spread.
H, The nose that moveth the eye or the second
pair.
I, The third conjugation, or the harder and inter-
branch of the nerves of the third conjugation
brought forward.
K, The fourth conjugation or the greafer and
thicker nerve of the third paire bending
downward.
L, A branch of the nerve marked with L, which
goeeth to the fore-head.
M, Another branch of the nerve I, reaching to the upper jaw, NN, A nerve pro-
ceeding from the branch I, intercut or woven with the coat of the nose.
O, The nerve of the temporal muscle issuing from the branch. P, A nerve con-
trasted of the nerves X and Y. Q, A nerve proceeding from the branch Z to the sockets of the upper teeth.
R, A nerve creeping from the nerve X, to the lower jaw. S, A fiddle of the branch X, offered to the lower lip. T T, Other fiddles from the branch Z, attaining to the lower teeth, Y Y, A branch of the nerve Z, diffused into the coat of the tongue. X X, The four pair of nerves which goe into the coat of the palleat. X, The fifth paire of nerves, which are the nerves of hearing. a, the membrane of the ear, into which that fifth nerve goeth. e, two small branches of the fifth conjugation uniting themselves with the nerve P. d, the eight conjugation or a nerve of the fifth paire attaining unto the face, ee, the five pair of nerves. f, A branch from the nerve e, reaching to the mus-
cles of the neck. g, Small branches derived unto the throat or larynx. h, the bifur-
cation of the nerve into two branches. i i, An inner branch hanging to the rackbones, and strengthening the intercostal nerves, and is therefore called Intercoetal. k k, Sutures of the outer branch going to the heads of the muscles, to the breast-bone and to the
collar-bones. l l, branches of the right nerve I, making the right Recurrent nerve;
The insertion of the recurrent nerves into the muscles of the larina, &c., branches of the left nerve making the left recurrent nerve p., q., branches from the fifth conjugation going to the coats of the lungs. r., small nerves of the heart and of the pufhe thereof called the Pericardium, &c., some approaching to the coats of the lungs, s., nerves on either side sent to the stomack, t., the right stomacke nerve going to the left orifice of the stomack, u., the left stomacke nerve going to the right orifice of the stomack. v., a nerve from the branch s., passing into the hollownes of the liver, w., the nerve belonging to the right side of the bell, x., nerve belonging to the collick gut, y., nerve creeping to the gut called duodenum and the beginning of the intestine or empty gut, z., a nerve implanted in the right side of the bottom of the stomacke, p., a nerve belonging to the liver and bladder of gall, q., a nerve reaching unto the right kidney, r., a branch reaching the Mesenterium and the guts, s., a nerve creepng to the gut called duodenum and the beginning of the intestine or empty gut, t., a nerve approaching to the left side of the bottom of the stomacke, u., a branch belonging to the left side of the Mesenterium and the guts, v., a branch which attains to the left kidney, w., small nerves creeping through the left side of the bladder, x., the fever pair of nerves, y., a branch derived from the fifth conjugation to the muscles which arise from the proccese called Stylolides, z., a branch of the seventh conjugation which goes to the muscles of the tongue, of the bone logis, and of the throat or larina. a., a conjunction or comion of the 6. and 7. pair into one nerve.

These Apophyses clinoides are certaine productions of the Orbiflare or wedge bone, (called the Saddle thereof,) between which, as I said, the pituitary glandule lies with part of the wonderful net. There is a great controversy amongst Anatomists concerning this part; for Vesalium denies that it is in man, Columbus admits it, yet hee feemes to confound it with the Plexus chorotides. Truly I have oberserved it alwayes in man, as Syl-vitis allcges againft Vesalius, It remaines, that we recite the Plexus chorotides perforations of the skull, because the knowledge of these much conduces to the understanding of the insertions of the veins, arteries and nerves.

Chap. X.

Of the holes of the inner Basae of the Scull.

The first place are reckoned the holes of the bone Esthmoiides, then those of the opticke nerves, thirdly of the nerves moving the eyes. Fourthly of that portion, of the nerves, of the fourth conjugation which goe to the temporal muscles, Fifthly are reckoned, thes holes scarce visible, situate under the pituitary glandule, by which the pettele is evacuated. Sixthly that hole which is in the wedge bone made for the entrance of the internall fleepy Arteries, constipating the wonderfull Ner, and then passing into the braine by a great flit. That perforation which we reckon in the seventh place is commonly double, made for the entrance of one of the branches of the internall jugular vein. The eight hole is somewhat long, of an oval figure, by which part of the third conjugation and all the fourth conjugation paffes forth. The ninth are the auditory passages. The tenth are very small holes, and give way to the veins and artery going to the auditory passage, above the foramen cocum, in the eleventh place are reckoned the perforations which yield passage forth to the sixth paire of nerves, to part of the sleepy Arteries, and of the internal jugular. In the twelfth those which yield a way out to the seventh conjugation; The great hole of the Nowle bone through which the pinall narrow passages is reckoned the thirteenth. The fourteenth is that, which most commonly is behinde that great hole, by which the Cervicall veins and arteries enter in.
Of the perforations of the external Basis of the Brain.

Here is a hole on each side at the Eye-browes, by which passes a small nerve from the third conjugation coming out of the cavity of the Orbe of the eye, and going by the forehead bone to the eye-browes, that it may give motion to the two muscles of the upper eye-brow and forehead. Yet oftentimes the hole is but to be seen on one side, oft times there is a cleft instead thereof, whereas it is not perforated nor cleft at all. The second is the perforation of the greater corner of the eye, by which a portion of the nerves of the third conjugation descends to the outside, in this hole the Glantula Lachrymalis is seated. The third is seated under the eye, that it may give way to the other portion of the nerves of the third conjugation going to the parts of the face, and teeth of the upper jaw. The fourth is at the beginning of the palate, amongst the cutting or sharp teeth, through which a vein, an artery and the coat of the palate passes out. In the fifth order are reckoned the perforations of the palate, by which the nerves descend from the fourth conjugation, to give, or cause the taste. In the sixth order are reckoned the holes of the palate serving for respiration, and the streams falling from the brain by the nostrils. And there is a cleft under the yoke bone ascending into the Orbe of the eye, by which there is a way, as well for the nerves of the third conjugation to the Temporal muscles, as also for certain veins and arteries. But also there is noted another hole at the mammillary process, which is not perforated in the judgement of the self. Besides there is thought to be another at the hinder root of the same process, by which a certain small vein passes from the jugular to the Torcular. But I have only noted these three passages by the way, because there is so much variety in them, that nothing can be certainly said of them.

Of the Spinal Marrow, or Pith of the Backs.

The spinal Marrow is like a River running from the fountain of the braine. This sends nerves for sense and motion to all the neighbouring parts under the head, spreading its branches as from the body of a tree. These branches, as we shall hereafter show, are on each side thirty. This same spinal marrow is covered with the two membranes invading the braine, distinguished by no distance of place, as in the braine. But also it has another membrane added to these, being very hard and dense, which keeps it from being broken and violated by the violent bending of the body forewards and about. The diseases of this marrow do almost cause the like Symptoms, as the diseases of the braine. For they hurt the sense and motion of all the parts lying beneath them, as for example; If any of the vertebra's of the back bone, be moved out of their place, there follows a distortion or wrenching aside of the Marrow, but then especially if happen that one of the vertebra's be strained, so sharp and bitter a compression urges the marrow by reason of the bony body of the vertebra, that it will either rend it, or certainly hinder the passage of the spirit by it. But by these same holes of the vertebra's the veins and arteries goe to the spinal marrow for to give life and nourishment to it, as the nerves by them passe forth into all the lower parts of the body.
Figure 1. sheweth the forme of the spinall marrow properly so called, with its membranes, and the nerves proceeding from it.

Figures. The spinall marrow naked and bare, together with its nerves, as most part of Anatomists have described it.

The tenth figure of the spinall marrow.

A, The beginning of the spinall marrow where it falls out of the skull,
B, The thickeste thereof in the spondels or rack-bones of the loynes,
C, The division thereof into firings, or hairy threds,
D, the seven nerves of the necke:
From D to E or from 7, to 19, there are the nerves of the backe,
From E to F, the nerves of the loynes,
From F to G, the nerves of the osseum or holy bone,
F, the end of the marrow,
K, L, do shew how the nerves doe issue from the marrow in firings,
M, M, the knots of the finewes made of the conjunction of those firings,
N, the membranes that invest the marrow.

Figure 2.

A, The beginning of the spinall marrow in the skull.
3, 4, 5, 6, 7, These Characters shew according to Vesalius opinion how the conjugations of the nerves of the braine doe take their original from the marrow remaining yet within the skull,
B, The egress of the spinall marrow out of the skull,
C, The cords or firings whereinto it is divided.

D, 7, The marrow of the necke and seven paires of finewes. E 19, twelve paires or conjugations of nerves proceeding from the marrow of the chest. F 24, The marrow of the loynes and five paires of finewes. G 30, the marrow of the holy bone and six paires of finewes. H, the extremity or end of the spinall marrow.

The End of the Fifth Booke.
THE SIXTH BOOKE TREATING OF the Muscles and Bones, and the other Extreme parts of the Body.

The Preface.

Eradventure some may wonder, that I have ended my fifth booke of Anatomic, before I have fully described all the parts of the head, which seemed as it were only appointed for that purpose. Therefore I must yield a reason of this my intention. I have a desire in one Treatise and as it were at one breath, to prologue the Anatomy of the Muscles. Wherefore because the parts of the head not yet described, principally consist of the Muscles, therefore I desired to comprehend them together with this same description of the extreme parts of the body; beginning at the upper part of the face, to wit, the eye; but having first described the bones of the face, without the knowledge of which it is impossible to shew the original and insertion of the Muscles. We have formerly noted that by the face is meant whatsoever lies from the Eye-brows even to the Chin. In which there is such admirable industry of nature, that of the infinite multitude of men you cannot find two so like, but that they may be distinguished by some unlikeness in their faces; also it hath adorned this part with such exquisite beauty, that many have dyed by longing to enjoy the beauty desired by them. This same face albeit it little exceeds halfe a foote, yet it indicates and plainly intimates by the sudden changes thereof, what affections and pulsions of hope, fear, sorrow and delight possesse our minds, and what state our bodies are in, found, sick or otherwise. Wherefore seeing the face is of so much moment, let us return to the Anatomical description thereof, which that we may easily and plainly performe, we will begin with the bones thereof, whereby, as we formerly sayd, the original and insertion of the Muscles may be more easie and manifest to vs.
He bones of the face are 16, or 17, in number. And first, there be reckoned 6 about the Orb of the eye; that is, to each orb, of which one is the bigger, another lesser, and the third between both; each of these touch the forehead bone in their upper part. Besides, the greater is joined with a future to the process of the fioni bone, and so makes the Zygoons, that is, the Os Jugal of zoole bone, framed by nature for preservation of the temporall muscle. The lesser is joined at the greater corner of the eye, in which there is a hole perforated to the nofe, and in this is the glandule in which the Bisylops dath breed. The middle is in the bottome, or inner part of the orb, very slender; as it were of a membranous thinnesse: then follow the two bones of the nofe which are joyned to the forehead bone by a future, but on the foreside between them selves by harmony. But on the backe or hinder part with two other bones, each side one, which descending from the bone of the forehead (to which also they are joyned by a future) receive all the teeth. These two in Galens opinion are feldome found separat. But these are the thickest of all the bones of the face hitherto mentioned, knit by a future with the greatest bone of the Orbe, on the backe part with the wedge-bone, on the inner side with the two little inner bones of the palate, which on the insife make the extremity thereof, whereby it comes to pafle, that we may call these bones the hinder, or inner bones of the palate. They reckon one of these bones the eleventh and the other the twelfth bone of the head; these two little bones on their sides next to the winged productions of the wedge-bone, receive on each side one of the nerves of the fourth conjugation, which in the former booke, we said were fpent upon the membrane of the pallare.

And in Galens opinion there be other two in the lower law, joined at the middle of the chin; although some thinke it but one bone, because by the judgement of senfe there appears no division or separation therein. But you may fee in children how true this their supposition is, for in men of perscel growth it appeares but Obs.

This law is hollow as also the upper, especially in the back-part, being filled with a white and glutinous humor, conducing to the growth of the teeth. This humor hath its matter from the blood brought thither by the veine, veins. Arteryes and nerves from the third conjugation entering herein a pafsage large enough. Whereby it comes to pafse, that this part is not only nourished and lives, but also the teeth receive fence by the benefit of the nerves entering thither with the veine and arteryes, by small holes to be feene at the lower roots of the teeth, and thence it is that a burning paine may be perceived in the tooth-ach, because the deflution may be by the arteryes, or rather because the humor flowing to the roots of the teeth may pride the arterye in that place; besides also you may fee some appearance of a nervous subthluse in the root of a tooth newly pluckt out.

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But also you must consider, that this law from its inner capacity produces at the fides of the chin two nerves of a sufficient magnitude, over against the lower dogs teeth and the frift of the smaller grinding teeth, as I have noted in the description of the nerves of the third conjugation. I have thought good to put these in minde of thee, that when thou shalt have occasion to make incision in these places, thou mayest wisely and discreetly handle the matter, that these parts receive no harme.
There remains another bone seated above the palate, from which the gristlely partition of the nose arises, being omitted by all the Anatomists, as much as I know. Now therefore that you may the better remember the number of the bones of the face, I will here make a repetition of them.

There are six of the orbs of the eyes, each three. The seventh and eighth we may call the Nasal, or nose bones. The ninth and tenth the jaw-bones. The eleventh and twelfth are called the inner bones of the palate. The thirteenth and fourteenth the bones of the lower jaw. The partition of the nose may be reckoned the fifteenth.

Now it remains having spoken of these bones, that we treat of the teeth, the Brows, the skin, the fleshly pannice, the Muscles, and lastly the other parts of the face.

Of the Teeth,

The Teeth are of the number of the bones, and those which have the most, have thirty two, that is, sixteen above, and so many below; of which in the forepart of the mouth there are four above and as many beneath, which are called the cutting, or shearing teeth, to cut in funder the meat, and they have but one root. To these are joined two in each jaw, that is, on each side of the other one, which are called the Dog's teeth, because they are sharp and strong like dog's teeth, these also have but one root, but that is farre longer than the other have.

Then follow the Molars or Grinders, on each side five, that is, ten above and as many below, that they may grind, chaw and break the meat; so it may be the sooner concocted in the stomack, for so they vulgarly think, that meat well chawed is soonest concocted. For these teeth are fastened in the upper jaw, have most commonly three roots, and oft times four. But these which are fastened in the lower jaw, have only two roots, and sometimes three, because this lower jaw is harder than the upper so that it cannot be so easily hollowed, or else because these teeth being fixed and firmly seated, needed not so many stays as the upper, which as it were hang out of their seats. The shearing teeth cut the meat because they are broad and sharp, the Dog's teeth break it because they are sharp pointed and firm, but the grinders being hard, broad and sharp, chaw and grind it in funder. But if the grinders had been smooth, they could not fairly have performed their duty, for all things are chawed and broken in funder more easily by that which is rough and unequall.

Wherefore they sharpen their Molars when they are smoother than they should be, by picking them with a sharp iron. The teeth are fastened in the jaws by a ligament, which applies it selfe to their roots together with the nerve and vessels. The teeth differ from other bones, because they have a motion whilst they are seated, which makes them grow as long as the party lives; for otherwise by the continual use of chawing they would be wore and wasted away by one another. You may perceive this by any that have lost one of their teeth, for that which is oppofite to it becomes longer than the rest, because it is not wore by its oppofite. Besides all this they have a quick sense, by reason of the nerves of the third conjugation which infert themselves into their roots; for if you rub or grind a tooth newly pluckt out, you may see the remains of the nerves; they have such quick sense, that with the tongue they might judge of farts. But how feel the teeth, seeing they may be filed without paine? Galenius answeres, that the teeth feel not in their upper or exterior part, but only by a membrane which they have within. And
The forehead helps for the articulation of the eyes; the teeth have another use, especially the fore-teeth, which is, they serve for distinct and articulate pronunciation; for those that want them faultier in speaking, as also such as have them too short, or too long, or ill ranked. Besides, children speak not distinctly before they have their fore-teeth. And you must note that the infant as yet shut up in its mother's womb hath solid and bony teeth; which you may perceive by discharging it presently after it is borne.

But even as there are two large cavities, in the forehead bone at the eye-browes, filled with a viscous humor, serving for the者eling and in like manner, the air shut up in the mamillary processes is for hearing; so in the jaws there be two cavities furnished with a viscide humor for the nourishment of the teeth.

Of the Broad Muscle.

When you should come to the Eye, you must shew how the eye is shut and opened, by this one muscle, because it is composed of the three sorts of fibers; although by the opinion of all who have hitherto written of Anatomy, those actions are said to be performed by the power of two muscles appointed for that purpose; one of which is at the greater corner on the upper part, the other resembling a semicircle at the broader corner; from whence extending it to the middle of the gristle Tarfasus, it meets with the former ending there, but they are in part extended over all the eyelid, whereby it commeth to pass that it also in some sort becometh movable. But although in public discourse these two muscles are commonly wont to be feenly shewn, after the manner I have related; yet I think, that those which shew them know no more of them, than I do. I have grounded my opinion from this, that there appears no other musculous flesh in those places, to those which separate the fleshly panicle, or broad muscle, than that which is of the panicle itself, whether you draw your incision knife from the forehead downwards, or from the cheek upwards. Besides when there is occasion to make incision on the eye-browes, we are forbidden to do it transversely, lest this broad muscle falling upon the eye, make the upper Eye-lid unmoveable; but if such a cut be received accidentally, we are commanded presently to stitch it up; which is a great argument that the motion of the upper Eye-lid is not performed by its proper muscles, but wholly depends and is performed by the broad muscle. Now if these same proper muscles which we have described should be in the upper eye-lid, it should be moveable; but when one of the muscles is in action, the other which is its opposite or Antagonist, rets or keeps holited, that when that which is fast to open the eye is impelled, the opposite thereof being, the upper eye-lid should be drawn towards its original, as we see it happens in convulsions, because the operation of a muscle is the collection of the part which it moves towards its original.

Therefore
Therefore seeing such a motion or collection appears not any where in the eye-lid, I think it therefore manifest that all the motion of this upper eye-lid depends upon this broad muscle, and that it alone is the author of the motion thereof.

The original of this broad muscle is from the upper part of the *sternum*, the clavicles, the shoulder blades, and all the spines of the *vertebrae* of the neck: but it is inserted into all these parts of the head which want hair, and the whole face, having diverse fibers from so various an original, by benefit of which it performes such manifold motions in the face (for it so spreads it selfe over the face, that it covers it like a vizard) by reason of the variety of the original and the production of the divers fibers of this muscle. But I have not in the description of this muscle profected those nine conditions, which in the first booke of my anatomy I required in every part, because I may seeme to have sufficiently declared them in the description of the muscles of the *Epigastrium*. Wherefore hence forward you must expect nothing from me in the description of muscles besides their original, insertion, action, composition, and the designation of their vessels.

C H A P. III.

Of the Eye-lids and Eye-browes.

Because wee have fallen into mention of the Eye-lids and Eye-browes, and because the order of dissection also requires it, we must tell you what they are, of what they consist, and how and for what use they were framed by nature. Therefore the Eye-browes are nothing els, than a rank of haires set in a semicircular forme upon the upper part of the *orbe of the Eye*, from the greater to the lesser corner thereof, to serve for an ornament of the body and a defence of the eyes against the acrimony of the sweat falling from the forehead. But the Eye-lids on each side two, one above and another below, are nothing els than as it were certaine shuttings appointed and made to close and open the eyes when need requires, and to containe them in their orbes. Their composure is of a muculous skin, a gristle and haires set like a pale at the sides of them to preserve the eyes when they are open, chiefly against the injuries of small bodies, as motes, dust & such like. These haires are always of equalle and like bignesse, set planted at the edges of the gristle part, that they might always stand straight and stiffe out. They are not thick, for so they should darken the eye. The gristle in which they are fastened is encompassed with the *perichranium* stretched so far before it produce the *coniumulus*. It was placed there, that when any part thereof should be drawne upwards or downwards by the force of the broad muscle or of the two proper muscles, it might follow entirely and wholly by reason of its hardnes. They call this same gristle, especially the upper, *Tarsi*. The upper and lower eye-lid differ in nothing, but that the upper hath a more manifest motion, and the lower a more obscure; for otherwise nature should have in vaine encompassed it with a muculous substance.

C H A P. V.

Of the Eyes.

The Eyes are the instruments of the faculty of seeing, brought thither by the vivfe spirit of the optike nerves, as in an aqua ducte. They are of a soft substance, of a large quantity, being bigger or lesser according to the bigness of the body. They are feated in the head, that they might over looke the rest of the body, to perceive and thinke such things as might endanger, or endanger the body; for the action of the eyes is most quick, as that which is performed in a moment, which is granted to none of the other senses. Wherefore this is the most excellent sense of them all. For by this we behold the fabricke and beauty of the heavens.
heavens and earth, distinguish the infinite varieties of colours, we perceive and know the magnitude, figure, number, proportion, size, motion and rest of all bodies. The eyes have a pyramidal figure whose basis is without, but the Cone or point within at the opticke nerves. Nature would have them contained in a hollow circle, that so by the profundity and soliditiy of the place they might be free from the incursions of bruising and hurtfull things.

Figure.

Composition.

Glandula Lacrymalis.

Figure.

Why fat is placed about the eyes.

They are composed of six muscles, five coats, three humors, and a most bright spirit, (of which there is a perpetual influx from the braine) two nerves, a double vein, and one artery, besides much fat, and lastly a Glandule seated at the greater angle thereof, upon that large hole which on both sides goes to the nofe, and that, lest that the humours falling from the braine should flow by the nofe into the eyes, as we see it fares with those whose eyes perpetually weep, or water, by reason of the eating away of this glandule, whence that affect is called, the Fistula lacrymalis, or weeping Fistula.

But there is much fat put between the muscles of the eye, partly that the motion of the eyes might be more quick, in that slipperiness of the fat, as also that the temper and complexion of the eyes, and chiefly of their nervious parts, might be more constant and lasting, which otherwise by their continuall and perpetuall motion would be subject to excessive drynesse. For nature, for the same reason hath placed Glandules flowing with a certain moisture, neere those parts which have perpetuall agitation.

CHAP. VI.

Of the Muscles, Coats and humors of the Eye.

Here are sixe muscles in the eye, of which foure performe the foure directe motions of the eye: they arise from the bottome of the orbe, and end in the midst of the eye encompassing the opticke nerves. When they are all moved with one endevour, they draw the eye inwards. But if the upper only use its action, it draws the eye upwards; if the lower, downwards; if the right, to the right side; if the left, to the left side.

The two other muscles turne the eye about, the first of which being the longer and slenderer, arises almost from the same place, from which, that muscle arises which draws the eye to the right side to the greater corner. But when it comes to the utmost part of the inner angle, where the Glandula lacrymalis is seated, it ends in a slender Tendon, there piercing through the middle membrane which is there, as through a ring, from whence it presently going backe is spent in a right angle towards the upper part of the eye, between the insertions of those sixe muscles, of which the one draws the eye upwards, the other directly to the outward corner, as it is observed by Palladino or rather, which I remember I have alwaies observed, they turne between the muscles which move the eye upwards, and to the inner corner.

This fifth muscle when it is drawne in towards its beginning, so drawes the eye with its circular tendon, that it carries it to the greater corner.

The fixt muscle is contrary to that, for it hath its original from the lower part of the orbe at a small hole, by which a nerve of the third conjugation passes forth; and being that it is most slender, while it ascends transevertely to the outward corner, it involves the eye so alfo, that it is invested in it by a small Tendon, so that the Tendons of them both are oftentimes taken but for one. That thou mayst truly and accurately observe this anatomical description of the eye; the eye must not be pluckt out of its orbe, but rather the orbe it selfe must be broken and separated.

For thus thou shalt certainlie and plainly see the forementioned original of the muscles. For the five coats, the first which is first met with in digestion, comes from the pericranium, and is extended over all the white of the eye, even to the Iris or Rain-bow. The duty of it is to strengthen, bind and contain the eye in its orbe, wherefore it had the name Conjonctivae, others call it Adnatae, or Epiphephyses.
The second is called the Corna, or the Horny coat, because it resembles a horn in colour and consistence; this coat differs and varies from it itself, for in the forepart, as far as the iris goes, it is clear and perspicuous, but thick & obscure in the hinder part, by reason of the diversely polishing. On the fore-part it is dense that it may preserve and contain the Chrysaline and watery humor, but withall transparent so to give the object a free passage to the Chrysaline. It hath its original from the Chrysaline, proceeding forth from the inner holes of the orb of the eye, for it compasses the eye on every side. The third is called the Poes or Grapy coat, because in the exterior part it represesthe colour of a black grape, and arises from the Pia mater, and encompasses all the eye except the pupil or apple of the eye, for here being perforated, it adheres to the horny coat by the veines and arteries which it communicateth from it for life and nourishment. But when it arrives at the iris, then forking the Corna, it descends deep into the eye, and in some part is turned about the Chrysaline humor, to which also it most firmly adheres, so bounding the watery humor, and also prohibiting that the Albigineous humor do not overwhelm the Chrysaline. This grapy coat is as it were dyed on the inside with divers colours, as black, brown, blew, or green like a rain-bow, and that for these ensuing benefits.

The first is, if it had been tintur'd with one colour, all objects would have appeared of the same colour, as it comes to pass when we look through green or red glasse. But it must be coloured, that so it may collect the spirits disparted by the Sunne and seeing.

Thirdly it was convenient it should be painted with infinite variety of colours for the preservation of the sight. For as the extreme colours corrupt and weaken the sight, to the middle refresh and preserve it, more or less as they are nearer, or further remote from the extremes. It was fit it should be so, that so it might not hurt the Chrysaline humor upon whose circumference it ends; and perforated in the part object'd to it, least by its obscurity it should hinder the passage of the objects to the Chrysaline, but rather that it might collect by its blacknes as a contrary, the great and as it were diffus'd variety of colours, no otherwise than we see the heat is strengthened, by the opposition of cold; some call this coat Choroides, because it is woven with many veines and arteries, like the coat Chorion which involves the infant in the wombe, and nourisheth both of its selfe, as also of the glase humor which it encompasseth.

Now follows the fourth coat called Amphiobistsides of Retiformia, the Net-like coat, because proceeding from the opticke nerve dilated into a coat, is woven like a net with veines and arteries which it receives from the grapy coat, both for the life and nourishment both of its selfe, as also of the glase humor which it encompasseth on the back part. The principal commodity of this coat is, to perceive when the Chrysaline humor shall be changed by objectes, & to lead the vise spirit instru'd or furnished with the faculty of seeing, by the mediation of the glase humor, even to the Chrysaline being the principal instrument of seeing. It is fote than any other coat, least the touch of it should offend that humor. Wherein thou wilt admire the singular order of nature, which as in other things it paffes not from one extreme to another unlefe by a Medium, so here it hath not fitted the hard horny coat to the soft humors, but by interposition of divers media of a middle consistence. For thus after the harder coats Adnatis and Corna they hath placed the Grapy coat, by so much softer then these two, as the Net-like coat is softer then it, that thus it might pafs from extreme to extreme as it were by these degrees of hardnes and sofines.

The fifth and last coat is called Arachnides, because it is of the consistence of a spiders web, and wee may well resembole this coat, to that skin of an union which exceeds the other in clearness, whitenesse and thinness. This Araneus or Cobweb-like coat encompasseth the Chrysaline humor on the fore side, peradventure that so it might defend it, as the chief instrument of seeing, if the other humors should at any time bee hurt. It hath its originall from the excrementious humidty of the Chrysaline humor, harden'd into that coat by the coldnes of the adjacent parts absolutely like the thin skin which encompasseth the white of an Egg.

The first humor of the eye is called the Aqueus or watireth, from the similitude of water, it is seated betwixt the transparent part of the Horny coat, the portion

of
of the Chriftalline humor lying towards the apple of the eye, and that reflection of the Grapy coat which comes from the iris to the circumference of the Chriftalline humor, that filling the empty space it may diftend the Cornea, and fo hinder the falling thereof upon the Chriftalline which would fpoyle the fight; as alfo that by its moifure it might hinder the drying of the Chriftalline humor. Peradventure it is made of the whayifh humor Sweating out of the veftell of the coats, having their orifices for the molt part in that place, where this watry humor refidues. The second humor and middle moift in fituation is called the Chriftalline because it imitats Cryfyll in the brightneffe and colour; if fo be that we may attribute any colour to it. For indeed it was that none of the three humors should be tinctured with any colour, as thofe which fhould be the instrumens of fight, leif they might beguile us in feeing as Read and greene spectacles doe; for that is true which we have read written by the Philofopher: That the Subject or matter apponted for the reception of any forme fhould want all impression thereof. Hence lojidfufit, the eye every way full, and fwollne, but lande and wrinkled when he is dead; besides the space, neither touching the horny coat nor Cryftalline humor, by reafon thefe

Of which thing this is an argument, that as long as a man remains alive, wee fee the eye every way full, and fwellne, but lande and wrinkled when he is dead; besides alfo one of the eyes being that, the Pupilla of the other is dilated by the spirit compelled to fly thither. And alfo for the fame caufe the hornie coat is wrinkled in very old men, and the Pupilla is strained by the wrinkles fubfiding into themselves, which is the caufe that they fee little, or not at all; for by age and fuccedence of time the humor is conflumed by little and little, the implaned spirit vanifhes away, and for allquantitie of spirits flow from the braine, as from a fountain which is also extinguished. The Hornie coat at his original, that is, in the parts next the iris, feemeth to be very nigh the Chriftalline Humor,becaufe all the coates in that place mutually cohere as touching one another, but as it runnes further out to the Pupil it is further diftant from the Chriftalline. Which you may eafily perceive by Anatomicall diffeccion, and the operation of touching or taking away a Catarrh, for whereas a Catarrh is feared between the hornie coat, and Chriftalline humor, the needle thruff in, is carried about upwards, downewards, and on every fide through a large and free space, neither touching the hornie coat nor Chriftalline humor, by reafon thefe bodies are fevered by a good diftance filled with spirit and a thin humor. The ufe of it, is, that it may be like a looking glaffe to the facultie of feeing carried thither with the vifive spirit.

Of the Muscles and Bones,
Table 1: 

1. Figure 1. Sheweth the Membranes and humors of the eye by lines drawn after the manner of a true eye.
2. Figure 2. Sheweth the horny coat with a portion of the Optick Nerve.
3. Figure 3. Sheweth the same divided by a transverse section.
4. Figure 4. Sheweth the Vena or Grapy coat with a portion of the Optick Nerve.
5. Figure 5. The Grapy coat of a man's eye.
6. Figure 6. The horn, Grapy and the Choroides.
7. Figure 7. The interior superficies of the Grapy coat.
8. Figure 8. The posterior part of the hornly coat together with the said Net coat separated.
9. Figure 9. The coat of the vitreous or glassy humor called Hyaloides.
10. Figure 10. Three humors joined together.
11. Figure 11. The forward part of the Cristalline.
12. Figure 12. The Cristalline humor covered yet with his coat.
13. Figure 13. The Cristalline of a man's eye.
14. Figure 14. His coat.
15. Figure 15. The watery humor disposed upon the Cristalline round about.
16. Figure 16. The hairly processes beamingly sprinkled through the foreside of the coat of the eye.
17. Figure 17. The hairly processes beamingly sprinkled through the foreside of the coat of the eye.
18. Figure 18. The foreside of the glassy humor.
19. Figure 19. The place of the watery humor.
20. Figure 20. The glassy humor containing or comprehending the Cristalline.

The figure of the eye.

The explication of the first

1. The Cristalline humor.
2. The Grapy coat.
3. The Optick Nerve.
4. The Dura meninx.
5. The Pia Mater or thin Meninx.
6. The Muciles.
7. The thicke.
Of the Muscles and Bones, L. I. N. 6.

thick Membran cloathing the nerve, & the posterior part of the horny coat. The coat called perine gathered together on an heape. Fig. 6. The rainbow of the eye, 1 2 3. The leffer circle of the eye or the pupilla, 1 2 3. Veins dispersed through the Dura Membrana. Fig. 5. The grapy coat, but Fig. 3. How the veins do join the hard membrane with the grapy coat. 6. The horny or hard membrane turned over. 1 2 3. The beginning of the Grapy coat made of a thin membrane dilated, but Fig. 17. The coats of the vessels of the braine, other some external stretched over the external parts of the eye, as the Muscles, and coat Aobas, and by these veins inflammations and redness often happen in the external parts of the eye: for which the venus papil must be opened, and cupping glases and hemes must be applied to the neck and shoulders, as in the intemal inflammations of the eye the cephalike veine must be opened to avert and evacuate the morbifice humor.

Chapter VII.

Of the Nose.

He Nose is called in Greeke RIs, because the excrements of the Braine flow forth by this passage, thou mayest understand it hath a divers substance by composition. The quantity, figure and use are sufficiently known to all. But is composed of the skinne and muscles, bones, gristles, a membrane or coat, nerves, veins and arteries. The skinne and bones both contained and containing, have formerly been explained, as also the nerves, veins and arteries. The gristles of the Nose are fixe in number, the first is double separating both the nofe-thrils in the top of the nofe extended even to the bone Ethmoides. The second lies under the former. The third and fourth are continued to the two outward bones of the nofe. The fifth & sixth being very fnder and defcending on both fides of the nofe, make the wings or aboveable parts thereof. Therefore the use of these gristles is, that the nose moveable about the end thereof, should be leffe obnoxious to external injuries, as fractures & bruises, and besides more fit for drawing the air in & expelling it forth in breathing. For nature for this purpose hath bestowed foure fpace muscles upon the nofe, on each fide two, one within, and another without.

The Gristles of the nofe.

The muscles thereof.
the third conjugation, through the hole which descends to the nose by the great corner of the eye.

The nose in all the parts thereof is of a cold and dry temper. The action and profit thereof is to carry the air and oftentimes smells to the mammary processes, and from thence to the four ventricles of the brain, for the reasons formerly thewed. But because the mammary processes being the passages of the air and smells are double, & for that one of these may be obstructed without the other, therefore nature hath also distinguished the passage of the nose with a gristy partition put between that when the one is obstructed, they are by the other may enter into the braine for the generation and preservation of the animal spirit. The two holes of the nose first ascend upwards, and then downwards into the mouth, by a crooked passage, lest the cold air, or dust should be carried into the lungs. But the nose was parted into two passages as we see, not only for the foresaided causes, but also for helping the respiration and vindicating the smell from external injuries, and lastly for the ornament of the face.

Chap. VIII.

Of the muscles of the face.

Now we must describe the muscles of the face pertaining as well to the lips as to the lower jaw. There are 18, in number, on each side nine, that is, four of the lips, two of the upper, and as many of the lower. But there belong five to the lower jaw. The first of the upper lip being the longer, and narrower, arising from the yoke-bone descends by the corner of the mouth to the lower lip, that so it may bring it to the upper lip, and by that means shut the mouth. The other being shorter and broader, passing forth of the hollownes of the cheek, or upper jaw (by which a portion of the nerves of the third conjugation descends to these two muscles, and other parts of the face) ends in the upper part of the same upper lip, which it composes together with the fleshy pannicie and skin, and it opens it by turning up the exterior fibers towards the nose, and shuts it by drawing the internal inward towards the teeth.

The first of the lower lip being the longer and slenderer, entering out of that region which is between the external perforation of the upper jaw (through which on the inner part of the same, a nerve paseth forth to the same muscles) and the muscle Mäfleeter, (of which hereafter) then ascending upwards by the corner of the mouth, it ends in the upper lip, that so it may draw it to the lower.

The other broader and shorter begins at the lower part of the Chin and the hollownes thereof, and ends at the lower lip which it makes, opening it within and without by its internal and external fibers, as we also laid of its opposite. And that I may speak in a word, Nature hath framed three sorts of Muscles for the motion of the mouth, of which some open the mouth, others shut it, and others move it and draw it away, but you must note that when the muscles of one kind joyantly perform their functions (as the 2 upper which we described in the first place, on each side one which draws the lower lip to the upper, and the muscles opposite to them) they make a right or straight motion, but when either of them moves severally, it moves obliquely, as when we draw out our mouth aside. But these muscles are so fastened and fixed to the skin, that they cannot be separated, so that it is no great matter whether you call it a muscular skin, or a skinny muscle. (Which also takes place in the palms of the hands and soles of the feet) but these muscles move the lips, the upper jaw being not moved at all.
Of the Muscles of the lower Jaw.

Of the Muscles of the lower Jaw.

The number of the Muscles is five in number, that is, four which shut it, and one which opens it, and these are alike on both sides. The first and greater of these four muscles which shut the Jaw is called Crouphila or Temporal muscle; it arises from the sides of the forehead and Brow bones, and adhering to the same and the sinew bone, it descends under the yoke-bone, from whence it infers itself to the proceeds of the lower Jaw which the Greeks call Corone, that it may draw it directly to the upper, so to shut the mouth.

But you must note, that this muscle is tendinous even to his belly, and that it fills and makes both the temples. It is more subject to deadly wounds than the rest by reason of the multitude of nerves dispersed over the substance thereof, which because they are near their original, that is, the brain, they inferre danger of sudden death by a convulsion which usually follows the affect of this muscle, but also in like manner it causes a fever, the Phrenzy and Coma.

The Figure of the chief muscles of the Face.

FIG. II.

A. The muscle of the forehead and the right fibers thereof.
B. The Temporal muscle.
C. D. The muscle of the upper lip.
G. The yoke-bone under which the temporal muscles passe.
I. The Masseter, or Grinding Muscle.
K. The upper gristle of the nose.
M. A muscle forming the cheekes.
N. The muscle of the lower lip.
O. A part of the Fifth muscle of the lower Jaw called Digastiricus, that is, double bellied.
Q. R. The first muscle of the bone Hyoides growing unto the rough Artery.
S. The second muscle of the bone Hyoides under the Chin.
T. The third muscle of the bone Hyoides stretched to the Jaw.
T.K. The seventh muscle of the head and his insertion as T.
V.V. The two venters of the fourth muscle of the bone Hyoides.
X. The place where the vessels passe which go to the head and the nerves which are sent to the Arms.

Therefore that it should be less subject or obvious to externall injuries, Nature hath, as it were, made it a retiring place in the bone, and fortified it with a wall of bone raised somewhat higher about it. The other Muscles almost equal to the former in bignes, being called the Masseter, or grinding muscle, makes the Cheeke, it descends from the lowest part of the greatest bone of the orbe (which bends it selfe as it were back, that it may make part of the yoke bone) and infers itself into the lower Jaw, from the corner thereof to the end of the root of the proceed Corone, that so it may draw this law forward and backward, and move it like a hand-mill.

Wherefore nature hath composed it of two sorts of fibers, of which some come from the necke (the check in that place under the eyes standing somewhat out like an apple arising from the concurrice of the greater bones of the orbe and upper Jaw) descending obliquely to the corner and hinder part of the lower Jaw, that it may move it forwards. Other come arise from the lower part of the same yoke-bone, and descending obliquely interfert the former fibers after the similitude of the letter X, and infert themselves
themelves into the fame lower jaw at the roots of the process Corone, that so they may draw it back. Truely by reason of these contrary motions it is likely this muscle was called the Maffeter or grinder.

The third, which is the round Muscle, arises from all the Gums of the upper jaw, and is inserted into all the gums of the lower, investing the sides of all the mouth with the coat, with which it is covered on the inside, being otherwise covered on the outside with more fat than any other muscle. The action thereof is, not only to draw the lower jaw to the upper, but also as with a Shovell to bring the meat dispersed over all the mouth under the teeth, no otherwise than the tongue draws it in.

The fourth being shorter and lesseth than the rest arising from all the hollows of the winged process of the Wedge-bone, is inserted within into the broadest part of the lower jaw that so in like manner it may draw the same to the upper. This is the muscle through whose occasion, we said this lower jaw is sometimes dislocated.

The fifth and last muscle of the lower jaw from the process Corne, that is to the lower jaw, that so in like manner it may draw the same to the upper. This muscle is fatter and Tendinous in the midst, that so it might be the stronger, but it is fleshy at the ends. All these Muscles were made by the singular providence of nature and ingrafted into this part for the performance of many uses and actions, as biting asunder, chewing, grinding and severing the meat into small particles, which the tongue by a various and harmless motion puts under the teeth. Thus much I thought good to say of the parts of the face, as well containing as contained.

The Figure of the Muscles of the lower jaw.

A. A hole in the forehead bone in the brimme of the leafate of the eye, sending a small nerve of the third pare to the muscles of the fore-head and the upper eye-brow.

B. The Temporal muscle.

CHAP. X.

Of the Eares and Parotides or kernels of the Eares.

If we take the Organs of the Sense of hearing, They are composed of the skin, a little flesh, a gristle, veins, arteries and nerves. They may be bended or folded in without harm, because being griselly, they easily yield and give way, but they would not doe so, if they should be bony, but would rather break. That lap at which they hang pendants and jewels, is by the ancients called Fibra, but the upper part Pons. They have been framed by the providence of nature into twining passages like a Snailes shell, which as they come nearer to the foramen acustum, or blind hole, are the more thinned so that so they might the better gather the aire into them, & conceive the differences of sounds and voices, and by little and little lead them to the membrane. This membrane which is indifferently hard bath grown up from the nerves of the fifth conjugation, which they call the auditory. But they were made thus into crooked windings, lest the sounds rushing in too violently should hurt the sense of hearing. Yet for all this we oft find it troubled and hurt by the noise of thunder, Guns and Bells. Other wise also left that the aire too sudainly entering in should by
But that we may understand how the hearing is made, we must know the structure of the organ or instrument thereof. The membrane which we formerly mentioned to consist of the auditory nerve, is stretched in the inside over the auditory passage like as the head of a Drum. For it is stretched and extended with the Air, or auditory spirit implanted there, & shut up in the cavity of the mammillary process and foramen basset, that stricken upon by the touch of the external air entering in, it may receive the object, that is the sound, which is nothing else then a certain quality arising from the air beaten or moved by the collision, and conflict of one or more bodies.

Such a collision is spread over the air, as the water which by the gliding touch of a stone produces many circles and rings one as it were riling from another. So in rivulets running in a narrow channel, the water strucken and as it were, beaten back in its course against broken, craggy and steep rocks, wheels about into many turnings: this collision of the beaten air flying back diverse ways from arched and hollow roofed...
roofed places, as Dens, Cisterns, Wells, thick Woods and the like, yeilds and produces a double found, and this reduplication is called an Echo. Wherefore the hearing is thus made by the air, as a medium, but this aire is twofold, that is, externall and internall.

The exterior is that which encompasses vs, but the interior is that which is fluid in the cavity of the mammillary proceffe and foramen saxum, which truly is not pure and sole aire, but tempered and mixed with the auditory spirit. Thence proceeds the noise or bearing of the Eares, when vapours are there mixed with the aire instead of spirits, whereby their motion or agitation is perturbed and confused. But neither doe these suffice for hearing, for nature for the more exact distinction of sounds hath also made the little bones, of which one is called the Incus or anvill, another the Malleus or hammer, the third the Stapes or stirrup, because the shape thereof resembles a German stirrup. Also it may be called Dehiodes, because it is made in the shape of the Greck letter ϊ.

They are placed behind the membrane; wherefore the anvill and hammer moved by the force of the entrance of the exteriour aire, and beating thereof against that membrane, they more distinctly expresse the difference of sounds, as strings stretched under the head of a Drum; as for example, these bones being more gently moved represent a low sound to the common sense & faculty of hearing, but being moved more vehemently and violently, they present a quick and great sound; to conclude, according to their divers agitation, they produce diverse and different sounds.

The Glandules should follow the Eares in the order of Anatomy, as well those which arc called the croundoryes of the braine, that is, the Parotides (Which are placed as it were at the lower part of the ears) as thefe which lye under the lower law, the muscles of the bone Hyoïdes & the tongue, in which the Scrophule and other such cold abfeefles breed. It shall here suffice to let downe the ufe of all such like Glandules.

Therefore the Parotides are framed in that place by nature, to receive the vitulent and maligne matter sent forth by the strength of the braine, by the veins and arteries spread over that place. The reft serve to strengthen the divifion of the vefsels, to moysten the ligaments and membranes of the Law, left they should be dryed by their continuall motion. Their other conditions and ues are formerly handled in our first booke of Anatomy.

CHAP. XI.

Of the bone Hyoïdes, and the muscles thereof.

The Substance of the Bone Hyoïdes is the same with that of other bones, The reason of the name, (as also the name A.γιόιδες, and from the letter ϊ it is i

The figure thereof imitates the greck letter ϊ from whence it took the name, (as also the name L.γιοίδες, γιὸίδες, and from the letter ϊ it is i

The compos and from the letter ϊ it is i

The fist, for this figure to prop it up by the strength of two processses rising at the bases thereof, and the root of the tongue. From this basis it sendeth forth two horns to the sides of the tongue on each side one, which in men are tied to the Appendix styloïdes by ligaments sent from it selfe. Contrary then it is beast, who have it of many bones united as we said, by the intercourse of ligaments even to the root of the filiiides. Wherefore this bone hath connexion with the forementioned parts, and other hereafter to be mentioned. It hath the same temper as other bones have. The ues of it is, to minifier ligaments to certain muscles.
cles of the tongue, and insertion as well to the two foremost and upper muscles of the throat, as to its own, of which we will now treat.

The muscles of the bone Hyoides, according to the opinion of some are eight, on each side four, of which there be two, one of which Galen refers to the common muscles of the Larin, or throat; and the other to those which move the shoulder-blade upwards. Howsoever it be, the first of the four before mentioned arises from the Appendix Styloidis, and passing over the Nervous substance of the muscle opening the lower jaw, is inserted into the bones of the bone Hyoides. This muscle is very thin, yet somewhat broad, the which in that respect may easily be cut, unless you have a care in separating the muscle which opens the lower jaw. The second ascends obliquely from the upper part of the shoulder-blade near the production thereof called Coracoides, to the beginnings of the bones of the said bone Hyoides. This is round and nervous in the midst that so it might be the stronger, as that is which we formerly said opens the lower jaw; and it is referred by Galen amongst those which move the shoulder-blade upwards. The third arises from the upper part of the sternum, and is inserted at the roots and bases of the bone Hyoides; yet Galen refers it to the common muscles of the Larin, whose opinion takes place rather in beasts, than in man, seeing in man this muscle cannot be found either to proceed, or be inserted into the throat, as it is in beasts. The fourth and last descends within from the chin to the root of the bone Hyoides. The first of these muscles with its companion or partner moves the bone Hyoides upwards; the second downwards; the third backwards; and the fourth forwards, I would declare whence the former four muscles ascend to the throat; the first of these moves the bone Hyoides upwards, the second downwards, the third backwards, and the fourth forwards. I would declare whence these muscles have their vessels, had I not abundantly satisfied that thing, when I treated of the distribution of the nerves, veins and arteries.

Chap. XII.

Of the Tongue.

The tongue is a fleshy, rare, loose and soft substance; it enjoys flesh of a different kind from the rest of the flesh, as chiefly appears when you cut it from the first original of the muscles thereof; which thing hath moved some, that they have made a fourth kind of flesh proper to the tongue and different from the rest, viz. the Fibrous, mucous, and that of the bowels. The quantity thereof is such that it may be contained in the mouth, and easily moved to each part thereof. The figure of it is triangular, which it rather expresses in the base, which is at the root of the bone Hyoides, than in its point, or forepart, where from a triangle it becomes more dilated. It is composed of a membrane (which it hath from that which lines all the inside of the mouth) muscles 4, nerves two on each side, the one whereof is sent from the third conjugation, into the coat thereof, the other from the cavernous is sent into the mucous substance even to the end thereof for motions sake; so that those sensitive nerves from the third conjugation only give to judge of tastes, compose the coat, and touch or enter not the flesh. Besides it is composed of veins and arteries on each side one, which it receives from the external jugular and Carotides, running manifestly to the end thereof on the lower side, that so they might be easily opened in the diseases of the mouth and throat, they commonly term the Vena nigra or black veins.

The muscles of the tongue are absolutely ten, on each side five. The first narrow at the beginning, and broader at the end, descends into the upper side of the tongue from the Appendix Styloidis, and together with its copartner draws it upwards. The second hath its original within from the lower jaw about the region of the Grinlinge teeth, and is inserted into the lower side of the tongue, which with its partner draws it downward. The third proceeds from the inner part of the Chin and goes to the root of the tongue, that when need requires it may put forth of the mouth. The fourth the greatest and broadest of them all, composed of
of all sorts of fibers, passes forth from the bases of the bone Hyoides, and ends at the lower part of the tongue, which with its companion plucks it back into the mouth. The fifth and last most usually arises from the upper part of the horns of the bone Hyoides and goes to the roots of the tongue between the two first, that it may move it to the sides of the mouth. The temper thereof, as of all other flesh, is hot and moist. The fifth action & commodity thereof is, to be the organ of the sense of tasting, whereby it is made sour & spongy, that by reason of the rarity of it, it might more easily admit the riffs conveyed with the sputum, as a vehicle. Another to be an instrument to distinguish the voice by articulate speech, for which it was made movable into each part of the mouth. The third is to be a helpe to chew & swallow the meat. For which cause it is like a fcoope or ditch with which wee throw backe the corne into the mill, which hath feared grinding. And because when the tongue is dry, it is left nimble & quicke to performe its motions, as appears by those which can taste by reason of thirst, or a burning fever: therefore nature hath placed very spongy glandules at the roots thereof, on each side one, which like sponges sucke and receive both from the braine & other places a waterish and sputuley humor, with which they hume, and make more glib, not onely the tongue, but also the other parts of the mouth, as the throat & jaws: these glandules are called the Tomille, or Almonds of the throat.

CHAP. XIII.

Of the Mouth.

The mouth is that capacity which bounded with the cheekes & lips containes within its precincts the teeth, tongue, and the beginnings of the throttle and gullet. Therefore the use of the mouth is to containe the tongue, & serve it in the better performance of its actions; & although many parts hereof have bin formerly handled, as the lips, teeth, lawes, tongue, almonds, & passages of the palate comming from the nofe; yet it remains, that we declare, what the palate, the Gargaron, or Vvula the pharynx, & fauces or Chops are. The palate, or as it is commonly call'd the Roofe of the mouth) is nothing else but the upper part of the mouth bounded with the teeth gums & upper law. In which place the coate commont to the whole mouth, is made rough with divers wrincles, that the meats put up & down between the tongue & the Palate might be broken & chawed more easilly by that inequality and roughnesse. If any would finde the nerves, that descend into the palate from the fourth conjugation, let him separate that coat & cast it from the fore to the hind part of the mouth; for so he shall finde them at the sides & hinde parts of the bones of the Palate, which incompsate from the nofe, & at the beginning of the inner holes of the mouth, which descend from the nofe & region of the productions of the wedgbone called the Saddle. These holes or passages are open, that we may breath better when we sleep, & that when the nofe is not well, the excrements which seek their passage by it, may be easier drawn away by the mouth. This same coat is woven with nervous fibers, that like the tongue, it might judge of riffs, these fibers compose a coat that hath a middle consistence betweene soft & hard. For if it should have beene any harder, like a bone or gristle, it would have beene without sene, but if sofer hard, acrude and sharpmeats would have hurt it.

CHAP. XIII.

Of the Gargaron, or Vwula.

The Gargon we understand a fleshly & Spongy body, in shape like a pine apple, hanging directly down at the further end of the palate & bases of the bone Ethmades, where the two holes of the palate come from the nofe, above the entrance of the throat. This little body is frature in this place, to breake the violence of the aire drawne in by breathing, & that by delay it might in some fort temper & mitigate it by the warmnesse of the mouth. Besides, that it might be as it were the Pelican, or quill of the voice, so to diffuse the fuliginous vapours sent forth in breathing that it may be dissipated over all the mouth, that refunding from thence it may be articulate, & by the motion of the tongue distinguishing & formed, into a certaine voice. Which use is not small, when we fee by experience that such as have this particle cut away, or eaten or corrupted by any accident, have not only their voice vitiated and deprived
depraved, but speak ill favourably, and as they say, through the nose; and besides, in process of time they fall into a consumption by reason of the cold air passing down before it is qualified. This same particle, is also a means to hinder the dust from flying down through the weazon into the Lungs. By the Pharinx and Gullet, being so called, because that place is narrow & strait, that as it were by these straits, the air drawn in by the mouth might be forced down by the Throttle, and the meat into the Gullet.

Chap. X V.
Of the Larinx or Throttle.

What the Larinx and Gullet is.

What is meant by the Larinx.

The magnificence, figure and composi.

The description of the 3 gristles of the Larinx.

When the infinitude of voices proceeds.

The muscles of the Larinx.
Their number.

A notable history.

Of the Muscles and Bones.

Lib. 6.

I'll we must shew what is meant by the Larinx or Throttle, then proceed to the consideration of it after our accustomed manner. Therefore the Larinx we undertand nothing els in this place, than the head & extremity of the rough Artery, or weazon, which comes nearer to Grilletely substanfie, than to any other, The quantity thereof is sufficiently large, yet divers according to the diversity of bodies. It resembles in shape the head of a German pipe. The compoufe of it consists of 18 muscles, on each side nine, which as they are like in quantity, so also in strength & action, of three gristles, veins, arteries and nerves, as we shewed, when we spoke of the distribution of the vessels, as also of a double coat, the one external, the other internal, as we shewed when we spoke of the weazon. These three Gristles are joynd together by certain Ligaments & muscles, the most mighty gristle, which also is the greater is called by the Grecians & Latinse Scutiforme, that is shield-like, because it resembles a shield. The second being the hinder and middle in magnitude, wants a name, wherefore it is called the innominata or nameless gristle. The last & least which notwithstanding may be parted into two, so lies upon the edges of the other, that it resembles the mouth of an oyle pot, or a pitcher, whereupon the Grecians call it Arystenodes. These gristles thus fitted amongst themselves utter a distinct voice, by the benefit of the Epiglottis, or After tongue, & also of the muscles opening & shutting dilating & compressing them, whence proceed infinite varieties of voices. For thus when they are opened and dilated they yield a heavy, or dull sound; when they are shut or drawn together, a quick, or sharp sound, and to conclude, they make it infinite ways different according to the infinite variety of the dilatation, or contraction thereof. Therefore because it was fit these gristles should be moveable, especially the Arystenodes & Thyroides, nature hath put to them on each side 5 muscles, of which three are common & proper. The first of the common lying hid under the third muscle of them that move the bone Hyoide, arises from the root of the same bone, & by an oblique defcent inferts itself at the basis of the shield-like gristle, to dilate it upwards & downwards. The second ascends obliquely from the inner part of the throttle according to the length of the weazon (whence it is called Brachieus) to the bottom & sides of the same shield-like gristle, that it may open and dilate it with its wings. This muscle is seen from the first originall thereof, even a great part of the way, if thy to coherte with the third muscle of the bone Hyoide; therefore under each of the muscles there is a gladiolous body siled above the fore & upper part of the weazon, on that place where it applies it self to the throttle, this body although it resemble a gladiolous substance, yet it is a glandule, which being pluckt away by a certaine Empereke taking upon him to cure the kings evil, caufed a defect of voice on one side, because be pulled away the recurrent nerve lying upon that glandule as it goes to the throttle, as Galen reports. Lib. de locis affelliis. The third & laft arises from the part of the Vertebra's of the neck lying tranversely upon the sides of the gullet, & ends at the wings & sides of the shield-like gristle, that it may rise it more straitly to the second Gristle. But these three are called common muscles, because they take their originall from some other place than the throttle that so they may be inferted into some part thereof, they are called the proper muscles, which arise from the Throttle itself, which we have said to be 6 on each side. The first of which arising from the fore part of the second gristle, makes a circle under the basis of the shield-like gristle, while it ascending obliquely to the basis thereof, it is afterwards inferted in a part of it, so to strengthen and dilate it. The second in like manner arising.
arising from the second gristle, from that place where it adheres to the first, it runs
obliquely crof[fing the first to the inner and forepart of the gristle \textit{Thyroidea}, near to
the basis thereof; that it may joynie it to the second. The third from the hinde basis of
the second gristle ascends directly to the basis of the third gristle \textit{Arystenoides}, that
with the second muscle it may open & shut it. The fourth ascends from the sides of the
second gristle, near the original of the second muscle, to the sides of the \textit{Arystenoides},
that with the second muscle it may open and shut it. The fifth arises from the inner
middle of the shield-gristle, and ends in the fore part of the \textit{Arystenoides} at the inferior
part of the fourth muscle, that it may press down the said gristle.

The first and last ascends by the hinde basis of the \textit{Arystenoides} to the fore basis of
the fame, to press it downe. But you must note, that all such muscles, as arise from below
upwards receive branches from the recurrent, but especially those who open and shut the gristle \textit{Arystenoides}. But the fire, temper, connection, and use of the throate
may easily be knowne by that we have said before: Although it be a thing very full
of difficulty to feach out and demonstrate all the conditions of the organick parts,
by reason of the diversitie of their composition. Wherefore hence forward con¬
cerning the substance, temper, and other circumstances of such parts as we shall omit,
you may have recourse to those things which we have written in the Demonstration
of the simple and similar parts, of which the organick are composed; as if any
should ask of what temper the \textit{Larynx} is, you shall anfwere, of a colde, dry, and hot;
and moist; because it contayneth both a gristlely and fecondly substance. Fie which
reaches up all the parts of the mouth, must not omit that gristlely and membraneous
body which arises from the roots of the tongue, which that it might be more quicke
for motion, that is, whereby it might be more easily erected and deprefted (for thofe
things which are more soft doe continually slide away, but thofe which are too
hard cannot be bended) it was convenient it shoule be neither too hard nor too soft,
that it might be erected whilst we breath, but deprefted when wee fwalloffe. It is
a principal instrument of the voyce, for it cannot be well articulated unleffe the way
were straite. Therefore it straitens that way, and the passage of the gristles of the
throat, but especially the \textit{Arystenoides}; it is always moist by a certaine native, and in¬
bred humiditie, wherefore if it happen to be dried by a fever, or any other like accident
the speach is taken away. It is bound on both sides by the common membrane of
the mouth to the sides of the \textit{Arystenoides} even to the backe part thereof, that fo like a
cover it may open and that the orifice of the throate, that none of the meat and drinke
in fwalloffe may fall into the weazon, in fuch abundance as may hinder the gristle
and regresse of the aire. For we must not thinke that this body doth so cleefly
that the orifice of the throate, but that some small quantitie of moisture alwayes
runnes downe by the inner sides, as the walettes thereof, to moisten the lungs; other¬
wise \textit{Epleoma} should be of no ufe in the difeases of the Cheft. And because that this
little body is partaker of voluntarie motion, therefore according to the opinion of
some there are foure muscles belfowed upon it, two which may open it and two
that thin it, on eache side. The opening muscles defend from the throat of the
bome \textit{Hyoides}, and in their infition growing into one they are terminated in the roote
of this body, that is, the \textit{Epiglottis} in the backe part thereof. The shutting muscles (in thofe
creatures where they are found) arife on the infide betweene the coate & gristle
thereof. Truly I could never obferue and finde these foure muscles in a man, though I
have diligently and careffly fought for them, but I have alwayes obferued them in
beasts. Therefore fome have boldly affirmed that this little body in fwalloffe lyes not
upon the orifice of the Throat, unleffe when it is press'd downe by the heavines
of fuch things as are to be fwalloffe, but that, at another times by reason of the con¬
nuall breathing it stands upright; the Throat being open. There remaynes yet to
be confidered, two fmall bofomes, or cavitie, or rather fiftures which nature hath
hollowed in the very throate under the \textit{Epiglottis}, on each side one, that if by chance
any of the meat or drink shoulde fall, or slip aside in the \textit{Larynx}, it might be there stayed & reteined. Befide that, the Aire too violentely entring, should be in some for broken by thefe clifts, or chinks, no otherwize then the blood and spiritt entring into the heart through the \textit{Auricles} or Eares thereof.
OF THE MUSCLES AND BONES.

Chap. XVI.

Of the necks and the parts thereof.

If we will define what the neck is, then proæque the parts thereof as well proper, as common, especially those of which we have not as yet treated.

For it were superfluous to speak any more of the skin, the flëth, panniculus, the veins, arteries, nerves, gullet, wealse & muscles ascending & descending to the parts into which they are inserted along the neck; wherefore you must not expect that we should say any thing of the neck, more than to describe the vertebra or rack-bones, being the proper parts thereof, & the ligaments as well those proper to the neck, as those which it hath in common with the head, & lastly the muscles as well those in common with the head & chest, as those of its own. Therefore the neck is nothing else, then a part of the head, which is contained between the noulé bone & the first vertebra of the back. First in the neck the vertebra's must be considered, & we must shew what they have proper & peculiar, & what common amongst themselves, that we may the more easily show the original & insertion of the muscles growing out of them & ending in them. The neck consists of seven vertebra or rack-bones, in which you must consider their proper body, & then the holes by which the spinal marrow passes; thirdly the appositions or processes of the vertebra, fourthly the holes through which the nerves are disseminated into other parts from the spinal bone, & besides the perforations of the transverse productions by which the veins, & arteries which we call vertebra ascend along the neck, & lastly the connexion of these same vertebra or rack-bones. For the first, by the body of the vertebra, we understand the fore part thereof upon which the gullet lies. For the hole, that is not always the largest in those vertebra which are nearest the head; but it is always encompassed with the body of the vertebra, & besides with three sorts of processes, except in the first rack-bone, that is right, transverse & oblique. By right we understand those exobturaries in the rack-bones of the necke which are hollowed directly in the upper part of them & rise up creatid on each side to continue and receive the basis of the rack-bone which is set upon it. By the oblique processes, we understand the bunchings out by which these rack-bones are mutually knit together by gliding together these are seated between the right & transverse processes. By the transverse we understand the protuberations next the body, which divide the vertebra of rackbone in a straight line. These processes are perforated that they may give way to the before described veins & arteries, which entering the spinal marrow by the holes of the nerves nourish the rack-bones, & parts belonging to them. Besides you must note that the perforations of the rack-bones of the neck by which the nerves proceed from the spinal marrow to the outward parts, are under the transverse process, that is growing or made by the upper & lower vertebra, contrary to all the other which are in the rest of the rack-bones.

For the connexion of the rack-bones, you must know that all the vertebra of the spine have six connections, two in their own bodies, & in their oblique processes. By the two first connections they are 5 mutually articulated in their own bodies: Each are joyned with other both above and below. But by the 4 other, by their oblique ascendent & descendent processes, on each side, they are to mutually inarticulate as the fourth rack-bone of the neck by its oblique ascendant processes is received over the oblique descendent processes of the third rack-bone, so it receives the oblique ascendent processes of the first, by its oblique ascendents, for always the oblique ascendants are received, and the descendents receive. Yet we must except the first rack-bone of the neck which is contained with 4 connections by his lower oblique processes, & by its upper by which it receives the oblique processes both of the noulé bone, & of the second rack-bone. The second vertebra or rack-bone must to be excepted which is held by 5 connections, that is to say, four by its oblique processes, & the fifth by its own body, by which it is knit to the body of the third vertebra. But we must note, that whereas nature hath not given a Spine to the first rack-bone, yet it hath given it a certain bunch or exobturary instead thereof in like manner, feigning it makes no common passage with the second vertebra, for the passage forth of the nerves, it is perforated at the sides of its body, & it is made very thin on the fore side, as if it were without body, that it might receive the fore process raised in the upper body of the second rack-bone.
Rack-bone, which Hippocrates calls the tooth, to which the principal Ligament of the head is fastened, which descends within from the hinder part of the head under the apophyses clavitor or processes of the wedge-bone.

Table 20. Figure 1. Sheweth all the rack-bone of the backe knit together. Figure 2. Sheweth the fore and upper face of the necke, &c. See D. Crooke, pag. 398.

From A, to B, the seven vertebres of the necke.
From C, to E, the twelve vertebres of the chest.
From F, to G, the five rack-bones of the Laynes.
From H, to I, The Os sacrum or Holy-bone consisting commonly of 5 vertebra.
From J, to K, The bone Coecyn or the rump-bone according to the late writers.

LL. The bodies of the vertebra.
M. The transverse processes of the vertebra.
N. The defendent processes.
O. The ascendent processes.
P, P. The backward processes.

The holes that are in the sides of the vertebra through which the nerves are transmitted.

AA. A griffly Ligament betwixt the vertebra.
A, 2, 3, 4. The hole where out the marrow of the backe issueth;
B, 2, 3. The cavity which admiteth the root of the second rack-bone.
C, 3, 4. A cavity or Sinus in the same place crufed over with a griffe.
D, 3. A prominence in the outward region of this Sinus.
EF, 2, 3. The Sinus or cavity of the first rack-bone which admiteth the 2. heads of the nowle-bone.
G, 2, 3, 4. the transverse processes of the Vertebra.
H, 1. The hole of this transverse process.
I, 3. The Sinus, which together with the cavity of the nowle-bone marked with K, maketh a common passage prepared for the nerves.
K, 3, 4. A rough place where the spine of the first rack is wanting.
LL, 4. Two cavities of the first racke receiving the 2. bunches of the second racke marked with MN.

MN, 5, 6. The 2. bunches of the second racke which fall into the cavities of the first.
O, 7. The appendix or tooth of the second racke, P, 5. A knob of this appendix crufed over with a griffle. Q, 6. The backside of the tooth. R, 6, the Sinus or cavity of the same, about which a transverse Ligament is rowled containing the said tooth in the cavity of the first racke. S, 6. Certaine cavities at the sides of the tooth where the roots or sale of the fore-branch of the second pair of finews. T, 5, the point of the tooth. X, 3, An asperity or roughneffe where is a hole but not thrilled through X, 6, A

S 3 cavity
cavity of the second rack which together with the cavity marked with $Z$, make a hole, through which the nerves doth issue. $Z$, the Sinus of the first rack. $a$, $b$, $c$, the double spine of the second rack. $f$, $g$, $h$, the transverse process of the second rack. $e$, $f$, the hole of the said transverse process. $f$, $g$, the transverse process of the first rack. $h$, $i$, $j$, the descending process of the first rack. $s$, $t$, the two upper parts of the spine. $u$, $v$, the three upper parts of the spine. $w$, the descending process of the third rack. $x$, $y$, $z$, the transverse process of the third rack. $a$, $b$, $c$, the hole of this transverse process. $d$, $e$, the upper hollowed part of the body of the third rack. $f$, $g$, the Sinus or cavity which makesthe lower part of a hole through which the conjurations of the nerves are led. $h$, $i$, the upper part of the same hole.

And by this articulation the head is bended forewards and backwards, as it is moved to the sides by the articulation of the first rack with the second. That the head is bendt is bound by two Ligaments, the first of which being the greater and broader andiorowards the extermal. Comprehending in the compass thereof all the upper articulation, as seen from the rack bones to the head, or rather descending from the head to them, as any other Ligament going from one bone to another. The other is the stronger and also encompasses the articulation mixing itself with the gristle, which by its interposition binds together all the rack bones, the first excepted, as you may see in pulling asunder the ratch bones of a Swine, and the whole spine or backbone is tied together and composed throughout with such Ligaments.

The Holy bone is composed of $a$, $b$, $c$, rather of five, or sixe, as in the figure following. Besides the Rumppe-bone, it receives and holds fast the offi, or Hanch-bones, and is as a seat to all the rack bones placed above it, whereby it comes to pass that the rack bones from the head to the Holy-bone grow still thicker, because that which supports ought to be bigger than that which is supported. There is a certain moisture, tough and fatty, pur between the rack bones, as also mother joints, to make them glib and slippery that so they may the better move. Whilesthis motion is made, the rack bones part one from another.

The commodities or uses of the spine are said tobe four: The first is, that it is, as it were, the seat and foundation of the composition and constitution of the whole body, as the Cartaffe is in a ship. The second, that it is a way or passage for the marrow. The third, because it contains and preserves the same. The fourth is, that it serves for a wall or bulwark to the entrailes which lie and rest upon it on the inside. And because we have fallen into mention of Ligaments, it will not be amiss to invent in this place, that which ought to be known of them. First we will declare what a Ligament is, then explain the divers acceptions thereof, and lastly profecute their differences.

Therefore a Ligament is nothing else than a simple part of man's body, next to a membrane. In general, for every part of the body, which joins one part to another, in which fente the skin may be called a Ligament, because in contains all the inner parts in one union. So the Periosteum comprehending all the natural parts, and binding them to the backe-bone so the membrane infeeting the Ribbs (that is the Pleura) containing all the vitall parts; thus the membranes of the braine, the nerves, veins, arteries, muscles, membranes, and lastly all such parts of the body, which bind together and conceive other, may be called Ligaments, because they bind one part to another; as the nerves
annexe the whole body to the braine, the Arteries as it to the heart: and the veins to the liver. But to conclude, the name of a Ligament more particularly taken signifies that part of the body, which we have described a little before.

The differences of Ligaments are many, for some are membranous and thin; others broad, others some thick and round, some hard, some soft, some great, some little; some wholly gritty, others of a middle consistence between a bone and a gristle, according to the nature of the motion of the parts, which they bind together in quickness, vehemency and slowness. We will shew the other differences of Ligaments, as they shall present themselves in defcription.

CHAP. XVII.
Of the Muscles of the Neck.

He Muscles of the necke as well proper as common, are in number twenty, or else twenty-two, that is, ten, or eleven on each side, of which seven only move the head, or the first vertebra with the head; the other 3 or 4, the necke it self. Of the 7 which move the head, & with the head the first vertebra, some extend & erect it, others bend and decline it, others move it obliquely, but all of them together in a successive motion move it circularly; and the like judgement may be of the Muscles of the Neck.

The fourth Figure of the Muscles. This Figure sheweth the cavities of the middle and lower bellies, the bowels being taken out, but most part of the bones and muscles remaining.

AB, The first muscle bending the neck called Longus.
CC, The second binder of the neck called Scalenus.
DDDD, The outward intercostal muscles.
EEEE, The inner intercostal muscles.
FFFF, The second muscle of the chest called serratus major.
GG, The first muscle of the shoulder blade called serratus minor, separated from his originall.
HH, The first muscle of the arme called Pectoralis, separated from his originall.
II, The second muscle of the arme called Deltoides.
XX, The bone of the arme without fleith.
LL, The first muscle of the cubite called Biceps.
MM, The second muscle of the cubite called Brachialis.
NN, The clavicle or collarbone bent backward.
OO, The first muscle of the chest called subclavius.
P, The upper process of the shoulder-blade.
S, The first muscle of the head called obliquus.
The fifth figure of the muscles in which some muscles of the head, chest, arms, and shoulder-blade are described.

1. The processes of the shoulder-blade, called the top of the shoulder.
2. The fourth muscle of the arm or the greater round muscle, to which Fallopian his right muscle is adjointed, which some call the lesser round muscle.
3. The first muscle of the arm or the upper blade outer.
4. The second muscle of the shoulder-blade or the Levator or heaver.
5. The second muscle of the chest or the greater saw muscle.
6. The fifth muscle of the chest or muscle called Sacroiliaca.
7. His place wherein he cleaveth faft to the longest muscle of the back.
8. The Tendons of the muscle obliquely inferrt into the ribs.
9. The first pair of the muscles of the head or the Splinters.
10. The sides of this muscle.
11. That distance where they depart one from the other.
12. The two muscles called Completi, next their insertion.
13. The second muscle of the back or the Longehe muscle.
14. The fourth muscle of the back or the Semi-spinatus.
15. The shoulder-blade bare.
16. A part of the transverse muscle of the Abdomen.

But before I can come to the description of their original and insertion, I must admonish thee, that the two Muscles of the shoulder-blade must first be taken away by dissection, that is, the Trapezius, or Table-muscle, and the Rhomboides, or square-muscle, whose original and insertion that we may the better demonstrate, (or rather the action by which we seeke that original and insertion,) they must be pulled up, beginning at their insertion, which is at the shoulder-blade (as shall be shew in the proper place) turning them up towards their original, that is, to the Spine. Besides the lefse Rhomboides, the hinder, and upper (called also the Demiseta or toothed-muscle) must be raited from its original, which is at the three lower Rack-bones of the Necke and the first of the back, and turned up to its insertion.
The sixth Figure of the muscles, showing some of the muscles of the Head, Backe, Chest, Shoulder-blade and Arme.

A D, the second parte of the muscles of the head, or the two Complex, the first part is at A D.

B C, the second part. B F, the third part rising up under G and inserted at F.

G, the fourth part of this muscle or the right muscle of the head according to Fulopius, which Velsa made the 4. part of the 2.

G G, (Between the ribs) the externall intercostal muscles.

L, the original of the muscle of the backe.

M, His tendons at the rachet-bone of the necke.

O O, the lower, the 6. muscle of the chest, or the Sacrolumbus hanging from his originall.

Q, the sixt muscle of the arme or the upper Bladerider inverted.

P, the third ligament of the joint of the arme.

X, the fourth muscle of the shoulder-blade or the beaver.

Z, the second muscle of the Chest or the greater Saw-muscle.

The lines, for thus anatomically order requires. Yet if you think good, you may, not hurting the other, first of all cut away that which is called the Massoide, which declines or bends the head. For the 4. which lift up and extend the head, the Transversalis, the 3. muscle of the necke called Spinatus, the 4. muscle of the necke called Spinatus, the 4. muscle of the backe or the Square muscle, the 2. muscle of the backe or the Longe, whose originall is at L and his tendons at the Vertebra at M M. O, the fourth muscle of the backe called Spinatus, the backe of the shoulder-blade flaid.
Of the \textit{Muscles and Bones}, Lib. 6.

If you begin at the spine, and so goe forwards to the transverse processes and mammillary processes of the navel bone. This \textit{Complexus} may be divided into two or three muscles, but that with some difficulty, by reason of its folded texture. The third and fourth, which be two of the eight little muscles, being fonde on each fide, doe ascend somewhat obliquely, the first truely from the whole fide of the second \textit{Vertebra}. The fectord from the whole fide of the process of the fift \textit{Vertebra}, which it hath in head of a fpine; they ascend to the backe part of the head juft againft the spine; these two muscles by the confent of all Anatomifts are called right, or direcd muscles, one- ly moving the head: theye truely muf't not be pluckt from the places of their origi- nall, nor infertion, but one ly bound by a firring put under them, that to they may be the more eafily thowed. On each fide follow two oblique muscles, one whereof

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{diagram.png}
\caption{The Seventh Figure of the muscles; shewing some muscles of the head and Cheft, the Trapezius or Table, muffcle being taken away: as also of the blade and arme.}
\end{figure}

\begin{itemize}
\item[A] The prominent part of the fourth musfle of the cheft called \textit{Serratus posterior superior}.
\item[\textbullet] the fift musfle of the head called \textit{Splenius}.
\item[\textbullet] the infertion of the second musfle of the head called \textit{Complexus}.
\item[I] the coller bone bared.
\item[M] the backpart of the second musfle of the arme called \textit{DecoJis}.
\item[\textbullet] His backward origi- nal.
\item[\textbullet] His implantation into the arme.
\item[N N] the fourth musfle of the arme called \textit{Latissimus}.
\item[\textbullet] His originall from the fspines of the rack-bones and from the holy bone.
\item[\textbullet] the connexion of this musfle with the hand-bone, which is led in the infide from, to.
\item[\textbullet] the place where it lieth upon the lower angle of the Bas of the shoulder-blade.
\item[O] the 4. musfle of the arme called \textit{Rotundus major}.
\item[P] the fift musfle of the arme called \textit{Suprascapularis inferior}.
\item[\textbullet] the fift musfle of the arme called \textit{Superficialis Superior}.
\item[\textbullet] the beginning of the third musfle of the arme called \textit{Latissimus}.
\item[\textbullet] the third musfle of the blade called \textit{Rhombojides}.
\item[\textbullet] His o- riginall from the fspines of the rackbones.
\item[\textbullet] His infertion into the basis of the shoulder-blade.
\item[\textbullet] the fourth musfle of the blade called \textit{Levator}.
\end{itemize}
conly moves the head; the other primarily the first Vertebra, but secondarily, and by accident the head itself. For the first, contrary to the opinion of some, it arises from the transverse process of the first rack-bone, and then is inserted, above the insertion of the first right muscle, which in like manner you must lift up, by some thing put underneath it, but not separate it. The other entering forth of the spine of the second Vertebra, is inserted at the process of the first, contrary to the original of the precedent, although some think otherwise. It will be convenient in like manner only, to lift up this with a string, and not pluck him from his place, that so you may see how all these make a perfect triangle. The action of this muscle is contrary to the action of the precedent, as the contrary of its original and insertion new.

The eight Figure of the muscles, especially of those of the Chefs; Head, and Shoulder-blade, the Trapezus, Latissimus, and Rhomboiiides being taken away.

A, The fourth muscle of the chest, or the upper and hinder Saw-muscle.
B, the 5th muscle of the chest, or the lower and hinder Saw-muscle.
C, A membranous beginning of the muscle of the Abdomen, descending obliquely down from the spine of the back.
D, the first muscle extending the Cubit at c, his original is from the necks of the arme, and from the lower basis of the blade and.
E, the original of the fourth muscle of the bone hyos from the blade.
G G, the outward intercostall muscles.
I, the Clavicle of collar-bone bared.
X, the upper, the second muscle of the arme called Deltos, char. 4, 5, the beginning of this muscle.
Y, the third muscle of the arme or the broad muscle separated.
O, the fourth muscle of the arme or the lower Super-Scapularis or blade- rider.
1, 2, 3, Char. His original at the basis of the shoulder-blade at 1 2, and his insertion into the joyn of the arme at 3.
Q, the sixt muscle of the arme or the upper Super-Scapularis.
X, the first muscle of the blade called Lestor or the heaver.
Z, the second muscle of the Chefs or the greater Saw-muscle.
1, 2, Char. the ribs, r, the sixth muscle of the chest, or the muscle called Sacro-lumbus.
A, the first muscle of the head or the splinter.
E E, the second muscle of the head or the insertion of the muscles called emptexx.
S, the second muscle of the backe or the longest muscle.
WWherefore
Wherefore when the first oblique moves the head obliquely forwards, the second pulls it back by the first Vertebra; this with his associate of the other side, may be truly termed the proper muscles of the neck, because they belong to no other part, whereas it is contrary in other muscles. But we must note, that the head (according to Galen's opinion) hath two motions, one directly forwards and backwards, as appears in beckning it forwards, and calling it backwards; the other circular.

The first in Galen's opinion is performed by the first Vertebra moved upon the second; the second by the head moved upon the first Vertebra, for which he is reproved by the latter Anatomists, who teach that the head cannot be turned round or circularly upon the first Vertebra without putting it out of joint.

For the last, which bends the head, it ascends from the upper and side part of the Sternum, and the next part of the clavicle, obliquely to the Apophyses of the two muscles of the head.

The ninth Figure of the muscles, showing the muscles of the Head and Neck.

A B, the third pair of the Muscles of the head called Recti Maiiores.
C, the Mammillary process.
D, the transverse process of the first rackbone.
E, the process of the 2 rackbone of the neck.
F G, the fourth pair of muscles of the head called Recti Minores.
H J, the fifth pair of muscles of the head called Obliqui Superiores.
K L, the first pair of muscles of the head called Obliqui Inferiores.
X, the fourth pair of muscles of the shoulder-blade.
A, the second muscle of the necke called Scalemus, which Falopius marks the eighth muscle of the chest.
B, the fourth muscle of the necke called Scaletus.
X, the first muscle of the backe called Quadratus.
E, the second muscle of the backe called Longissimus.
A, the sinus or bosome of this muscle, whereby it giveth way unto the third muscle of the backe, called Sacer.
B, His Originall.
C, His Originall.
D, His Originall.
E, the fourth muscle of the backe called Semispinales, E, His upper end under the fourth muscle of the necke.

Maiiores or mammillary proceffe of the hinde part of the head, whence it is called the Maioides. You may divide this by reason of its manifold originall rather into two, than into three muscles. But it had beene better that the head might have beene moved every way, equally backwards and to the right and left sides, but thus it would often have beene strained to our great dammage and danger of life; neither could there have beene such facility of motion without a loosenfhe of the joynt. Therefore nature had rather bethow upon the head an harmeoffe facultie of fewer motions, than one furnished with more variety, but with a great deale more uncerneity and danger. Wherefore it hath made this juncture not laxer or loofer, but stiffe and strong.
After the drawing of these muscles, we must come to three or four of the neck, of which number two (which some reduce to one) extends another bends, and the last moves sides ways, and all of them with a motion succeeding each other turn it about, as we said of the muscles of the head. The first of these which extend, taking its original from the first transverse processes of the five upper rachis-bones of the back, or rather from the root of the oblique, ascends directly to the spine of the second vertebra of the neck, and the oblique processes thereof some call it the Transversus; that is, the transverse-muscle. This, if you desire to take it away, it is best first to separate it from the spine, then to turn it upwards to the transverse processes, unless you had rather draw it a little from its partner and companion in that place where their originals are distinct, seeing it is the last and next to the bones.

Marvell not, if you find not this distinction of their originall, so plain and manifest, for it is commonly obscure. For the muscle Spinatus, as it most commonly comes to pass, arising from the roots of the seven upper spines of the back, and the last of the neck, is inferred into other spines of the neck, so that it might easily be confounded with the former by Galen. The third bends the neck, and arising within from the body of the five upper vertebra of the back (though with a very obscure original, specially in leane bodies) it ascends under the gullet along the neck, even to the navel-bone, into whose inner part it is obscurely inserted. Wherefore it is likely that it helpes not only to bend the neck, but also the head. This muscle is made of oblique fibers proceeding from the body of the vertebra, all the way it passes to the transverse processes of the other vertebra. But it seems with its companion which is opposite to it, to make a certain hollow path upon the bodies of the vertebra, to the gullet, and it is called the long muscle. The fourth and last, which we said moves the neck to one side, is called Scalenus from the figure thereof; it ascends from the hinder and upper part of the first rib of the chest, inferring its self into all the transverse processes of the neck by its fibers, which as it were for the same purpose, it hath sufficiently long, that it may take it from the further or lowest process of the neck into the first or highest thereof. The passage of the nerves through this virtue makes this muscle seem double or divided into two. For the veins and arteries pertaining to the neck, they have been declared in the proper Chapters of the distributions of the vessels; it remains that you note, all these muscles receive nerves from the vertebra whence they arise.}

**Chap. XVIII.**

*Of the Muscles of the Chest and Loines.*

Emustnow speake of the Muscles both of the Chest which serve for respiration, as also of the Loines. But first we must know that the hinder part of the Chest called the Metaphrenum, or backe, consists of twelve vertebra, the loines of five, all which differ not from the vertebra of the neck, but that they are thicker in their bodies than these of the neck, neither are they lesser in holes, neither have they their transverse processes perforated, or parted in two, as the rachis-bones of the neck have. Besides each of these rachis-bones alone by itself; on each side in the lower part thereof makes a hole, through which a nerve hath passage from the spinal marrow to the adjacent parts, when on the contrary in the vertebra of the neck, such holes or passages are not made, but by meeting together of two of them.

Concerning the processes of the Rackbones of the Chest, whether transverse, right or oblique, they differ nothing from those of the neck (I mean even to the tenth) but that the transverse being they are not perforated, as we said before, do as it were continue the ribs, being straitly bound to them with strong ligaments both proper and common; but after the tenth vertebra of the back, the two other of the back, and all those of the loines are different, not only from those of the neck, but also from the same first of the back, by reason of their oblique processes, because from the
How the tenth lamina of the back may be termed the middle of the spine, being the whole spine consists of twenty-four vertebrae? He may know that this may be true, as thus: if the fixed bones of the holy-bone, and the fourth of the Rump (being more gritty than bony) be numbered amongst the bones of the spine; for then from the setting on of the head to the eleventh rackete bone of the back are seventeen in number, and so many from thence downwards.

But let us return to the muscles of the Chest serving for respiration. First, you must know that these muscles are fourscore and nine, that is, on each side forty-four, alike in strength, thicknefse, fire, and action; and one besides in the middle which they call the Diaphragm or Midriffs. Of these forty-four, there are 22, which dilate the chest in drawing in the breath; that is, the Subclavions, the Dentatus, or Serratus major in the opinion of some, both the Rhomboides, or Serratus minor, the oblique ascendent of the lower belly, the eleven Intercostalae externe. On the contrary, as many contract the breath in expiration; to wit, the Sacro-lumbaris, the oblique descendens, the Right and transverse of the lower belly, the inner Tranqlar, the fixe Intercostalae interne, and the eleven inner Intercosta-

les. Of these twenty two dilating the Chest, the first, from the fire is called the Subclavium, for it descends obliquely from the inner and forepart of the Claviculo or Collar-bone, into the griffle of the first ribbe, even to the Sterno, and dilates it. The second is the Serratus major, the greater Saw-muscle arising according to the opinion of some from the whole Serrate or the Shoulder-blade on the under side, and it tranfversely inferted into the nine upper ribs, producing certaine toothed or saw-like procffes running further to the bones of the rib, than to the spaces between them, or Intercostall muscles, whereupon it hath the name of the saw-muscle, yet some have referred this muscle to them of the shoulder-blade. The third descends from the three lower spines of the neck, and the first of the back, by means of a membranous and most thinne ligament, into the three or foure upper ribs, running further into their spaces or Intercostall muscles, than into the ribs themselves, wherupon it is called Serratus pofterior, & inferior, that is, the hinder and upper saw-muscle. The fourth in like manner ascends by means of a membranous and thin ligament from the three upper spines of the loines, and the two laft of the chest, or backe, into three or foure of the lower, or laft of the balfard ribs, fent forth further into them or their bones, than into the Intercostall muscles poftifing the spaces between them, wherefore it is called Serratus pofterior & inferior, the hinder and lower saw-muscle. Moreover these two laft muscles have been called by a common name from their figure the Rhomboideis, that is, the square musles. The fifth which we first was the ascendent of the Epigrafixium, hath already beene sufficiently defcribed in his place. The eleven Intercostalae externe, or external Intercostall muscles defcend obliquely from the backe part of the lower side of the upper ribbe, into the forepart of the upper side of the ribbe lying next under it, after a quite contrary manner to the fixe Intercostalae interne; who having like original and infection amongst the griffes, as the Intercostall amongst the ribbes, defcend obliquely from the forepart backwards. And thus much of the muscles dilating the Chest in inspiration.

But the first, of the other muscles, being as many in number, which contract the Chest in expiration, arising from the holy-bone, and the oblique procffes of the loines, ascends (firmely and confufedly adhering with the Musculus facer, or holy-muscle, which we shall describe hereafter) to the roots of the twelve ribbes, imparting in the afeent a small tenden to each of them, by which it draws these ribbes towards the tranfverse procffes; and by reafon of its Original it is called Sacro-lumbaris; that is, the Holy-loine-muscle.
The second, third, and fourth, which we said were the oblique descendant, right, and tranverse of the Epigastrium, have been formerly described in their place.

But by the way you must note that these three muscles of the Epigastrium help expiration rather by accident, than of themselves, to wit, by driving back the mid-riff towards the lungs by the entrails, which also they force upwards, by drawing the parts into which they are inserted towards their Original. The fifth which we called the Triangulis, or Triangular, may be called the Compressor of the gristles, which proceeding from the inner sides of the Sternum, goes to all the gristles of the true ribs; this is more apparent under the Sternum in beasts, than in men, though it be not very obscure in them neither. For the internal Intercostall muscles, in my judgment, arise from the lower sides of the upper ribs, and descending obliquely from the fore part backwards, are inserted into the upper side of the rib next under it; so that they may follow the production of the fibers of the external Intercostalginæ, as the fixe internal Intercostalginæ follow the site of the external Intercostall proceeding from behind forwards; wherefore as well the Intercostall, as the Intercostalginæ, every where interject each other, after the similitude of the letter X. I know some have written that the internal muscles (whether Intercostal or Intercostalginæ) ascend from the upper sides of the lower ribbes forwards, or backwards.

But if this were true, it would follow that these muscles admitted their nerves in their tail and not in their head, seeing the nerve always goes under the ribbe, and not above it.

The last muscle of the Chest, that is, the Diaphragma or Midriff, is sufficiently described before; wherefore it remains we describe the muscles of the Loines. These are six in number, on each side three, equal in thicknesse, strength and situation, one of these bends, and the other two extend the Loines; it is called by reason of the figure the Triangulis, or Triangular which bends the Loines, it ascends from a great part of the hinder side of the Haunch-bone into the transverse processes of the Loines, and the last of the Chest on the inside, for which cause it is made of fibers short, long, and indifferent, answering to the neareneffe or distance of the said processes. The first of the extenders is called the Semispinales, because even to the middle of its body it takes the original from the spines of the holy-bones and Loines, with its oblique fibers ascends from all the said spines to the transverse processes as well of the Loines as Chest. The other is called Saeer, the Holy-muscle, because it takes its original from the Holy-bone, or the spines thereof; it ascends with its oblique fibers to the spines of the Loines, and of the cleaven lower Rack-bones of the Chest.

Chap. XIX.

Of the Muscles of the Shoulder-blade.

Now we must describe the muscles of the extreme parts, and first of the Arms, taking our beginning from these of the Shoulder-blade. But first, that we may the better understand their description, we must observe the nature and condition of the shoulder-blade. Therefore the blade-bone on that part, which lies next unto the ribs, is somewhat hollowed, wherefore on the other side it somewhat buncles out. It hath two ribs, one above, another below: by the upper is sent nothing else than a border or right line, which looking towards the temples is extended from the exterior angle thereof under the collar-bone, even to the Processe Coracoide which this ribbe produces in the end thereof: By the lower, the under side which lies towards the lower belly and the short ribs.

Besides in this shoulder-blade we observe the basis, head and spine. By the basis we understand the broader part of the shoulder-blade, which looks towards the backe;
The head of the shoulder-blade.

The back-bone. By the head we understand the narrower part thereof, in which lies the head of the Arm in a cavity, indifferently hollow, which it produces both by itself, as also by certaine griffles, which there fastened encompasseth that cavity. This kind of cavity is called Glena.

The spine of the blade. The procercus Acrumion and Coracoides.

This receives and containes the bone of the arm, by a certaine strong ligament encompassing & strengthening the joint, which kind of ligament is common to all other joints; this ligament arises from the bottome of the cavity of the shoulder-blade, and circularly encompasseth the whole joint, fastening it false to the head of the arm; there are also other ligaments besides this, which encompass & strengthen this articulation. By the spine is meant a proccese, which rising by little and little upon the gibbous part of the blade, from the bafe thereof where it was low and depreft, becomes higher until it ends in the Acrumion, or upper part thereof. Nature hath made two productions in this bone (that is to say, the Acrumion from the spine, and the Coracoides from the upper side) for the strengthening of the articulation of the arm and shoulder-blade, that is, left the arme should be easily strained upward or forwards; besides, it is fastened to the clavicle, by the proccese Acrumion.

The muscles which move the shoulder-blade are fixe in number, of which foure are proper, and two common. The first of the four proper seated in the forepart, ascends from the bones of five or fixe of the upper ribs, to the Coracoides, which it draws forwards, and is called Serratus minor, that is, the Lesser Faw-muscle, which that you may plainly shew, it is for you pull the pectorall muscle from the collarbone, almost to the middle of the Sternum. The other first opposite against it, is placed on the fore side, and draws its originall from the three lower spines of the necke, and the three upper spines of the chest, from whence it extends it selfe, and ends into all the griffly bafe of the shoulder-blade, drawing it backwards; it is called the Rhomboides. The third from its action, is called the Levatores, or the heaver, or lifter up, that fide descends from the transverse processes of the four firft vertebrae of the necke into the upper arms, and spine of the blade. The fourth called Trapezius, or the Table-muscle, is seated in the backe part, and is membranous at the originall. The firft is to draw the shoulder-blade towards its originall, that is, to the spine and spine of the necke; the other is to draw it towards the backe, because of the contraction of the middle or transverse fivbes which leade it direftly thither, and the other is to draw it downwards by reafon of the originall, hath from the fifth, sixth, seventh, and eighth spine of the Vertebrae of the chest.

But we must note that these diverse actions are not performed by this muscle, by the affiance of one onely nerve, but by more, which come into it by the spinall marrow, by the holes of the Vertebrae, as well of the necke as the chest, from whence it takes the originall. For the two other which are the common muscules of the blade, and arme, or shoulder, we will decrire them with the muscules of the shoulder or arme: for one of thefe which is called the Latissimus, that is, the broadeft, ascends from the holy-bone to the shoulder-blade and arme.

The other named the Pecoralis comes from the Sternum and collar-bone to the shoulder-blade and arme.
and then divide it into its parts. Therefore the hand is taken in two manner of ways, that is, generally and specially.

The hand generally taken signifies all that which is contained from the joyning of the arm to the shoulder-blade, even to the ends of the fingers, but in particular it signifies only that which is comprehended from the farthest bones of the cubit, or the beginning of the wrist, to the very fingers ends.

Therefore the hand in general is an instrument of instruments made for to take up and hold any thing. It is composed of three great parts, that is, of the arm, cubite, and hand, vulgarly, and properly so called; but the hand taken thus in particular is again devided in three other parts, the Carpus or Brachiale, the Wrist, the Metacarpium, or Posibrachiale, the after-wrist, and the fingers; all these parts (seeing each of them are not only organical parts, but also parts of organical parts) are composed of all, or certainly of the most of the simular parts; that is, of both the skins, the fleshly panicle, the fat vaines, arteries, nerves, muscles or flesh, costs both common and proper, bones, gristles and ligaments, all which we will describe in their order.

But first I thinke good to admonish you of the differences of the hand taken from the rest thereof; and these differences are fixe in number, the fore, the hinde, the internal, the external, the upper and lower side or part thereof.

By the fore we mean that part which lookes directly from the thumbe to the shoulder; by the hinde, we understand the part opposition to it, which from the little finger lookes towards the bathe of the shoulder-blade. By the inside we signifies that part which lies next to the sides of the body, when the hand retaine its natural sit; by the outside, the part opposition to it. The upper and lower side you may know by the very naming thereof.

The hand properly so called is divised into five fingers, that so it may hold and take up bodies of all figures, as round, triangular, square and the like, and gather up the least bodies with the fingers ends, needles, pins, and such like.

Nature hath bestowe two hands upon us, that so they may help each other, each moving to each side. But for the taking up and holding of small bodies it was fit, that the fingers of their own nature soft, should be armed with nailes, that consisting of soft flesh and a hard naile, they might serve for all actions; so the nailes is a stay to the soft flesh, which otherwise would turne away in meeting with an hard body; the use of the nailes is to scratch, flave, and pull off the skine, to rend, pinch, and plucke afunder small bodies. They have not bony hardnese, that so they might not breake, but bend.

Yet other creatures have hard nailes, to serve them in deed of weapons. Their figure is round, because such a figure is leffe obnoxious to externall injuries; and by reason they are subject to wearing, they grow continually.

Nature hath placed flesh on the inner and side part of the fingers, so to presse more strictly, the things they once take hold of, so that by holding them close together, we can hold water that it may not runne out. The length of the fingers is unequal, that when they are opened and stretched forth, they make as it were a circular figure; so to it comes to passe, that the hand can hold all bodies, but especially round.

It remains that we prosecute the distribution of the vaines, arteries, and sinewes, which rune over all the parts of the hand taken in general and particular, whereby wee may more commodiously hereafter handle all the proper parts thereof.

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**LIB. 6.**

**Contained in the Head.**

**The difference of the hand from the rest thereof.**

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**Why the hand is divided into so many like parts.**

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**Why the nailes grow continually.**

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Of the Muscles and Bones,

Lib: 6.

CHAP. XXI.

The Distribution of the Subclavian vein, and first of the Cephalic, or Humeralia.

Wo large veins descend from the Subclavian, the one from the lower side, the other from the higher. Yet sometimes, and most usually, both these proceed from the same common orifice, as in men of slow stature in the arm. The one of these is called the Axillaria, the other the Humeralia, or Cephalic; therefore this Cephalicke passing forth of the Subclavian tunnes superficially along the foreside betweene the muscle Deltoide, and the Tendon of the pectorall muscle, and descends in the midst between the common orifice of the muscles and the siccely pannicule, even to the bending of the cubite, where in leane bodies it is plainly to be feene, whereas in fat bodies it is hardly to be perceived, being as it were buried in abundance of fat. This vein having in its descent, sent forth some small branches, both to the skinne, as also to certaine muscles over which it runs, is devided into two, a little above the outward prokruberation of the arm. One of the branches into which it is devided descends obliquely to the fore part of the cubite, a little below the bending of the cubite, it meets, and is united with the like branch in the same place, as shall be shewne hereafter.

That which arises from this concourse, is called the median vein, because it arises from two branches, and is seated betwene them. They usually open this median vein in the diseases of the head and liver, which require Phlebotomy; but if it shall not be sufficiently manifested, when you judge it must be opened, for a generall evacuation of the whole body, you may cut one of these branches, by whose concourse it is made, which you shall think the fittest, because each branch drawes from the next parts, according to the straightneffe of the fibers, rather than from the opposite side; if you would evacuate the head, and liver equally, by opening either of these branches, it is convenient that opening that branch (for example) which comes from the Cephalicke, you presently lay your thumbe upon it, until you suppose, you have drawn a just quantity of blood from the liver, or liver vein; which done, you may take off your thumbe, and suffer the blood to follow freely, by the open branch of the Cephalicke, until you have drawn as much blood as you shall judge requisite; otherwise you will draw it but from one part, to wit, the head. So you shall evacuate it only from the liver, if you open the branch which comes from the Basilicke, and consequent to the generation of the median.

Moreover, when there is neede to open the Basilicke, and it shall be no where convenient, the Cephalicke or median being eafe to be differeed at the same time, you may in stead thereof open the median, or if it be not to be found, the Cephalicke, pressing but the trunke thereof with your thumbe, as we said before, left the head should be evacuated in stead of the liver. You may doe the same in the Basilicke, if when there shall be neede to open the Cephalicke, it shall not appear. Most of those which at this day open a vein, in stead of the median, open that branch of the Basilicke which ascends, together with the Cephalicke to make the median. But you must understand that the median descends betweene the two bones of the cubit, even to the end thereof, and then divided into many branches, it is at length spent on the backe of the hand behind the thumbe, the fore and middle fingers, or the afterwrist. Sometimes it runs backe into the following branch, and then at the week it departs from it, to be bestowed upon the forrementioned parts. The other branch of the Cephalicke, which we may call the fore and outward Cephalicke, descending directly downe to the midst of the wand, thence wanders overthwart into the hind part of the arm, where encreased with a branch from the Basilicke, it is distributed over al the backe of the hand, which with the median it nourishes. But the branches of these veins doe run through the forrementioned parts, that by the way, they yeeld them necessary provision.

CHAP.
The Description of the Axillary Veine.

The Axillary arising at the intertiof of the pectorall muscle, or a little higher, after it hath produced the two Thoracica it is devided under the intension of that muscle into two faire branches, that is to say, into the inner deepe Axillary, and the skinne or outward axillary. The deepe or inner having fall for his companion in his descent, the axillary artery, and the nerves of the third conparation, after it hath produced the small externall mucilaginous of the arme, it goes into the bending of the elbow, where running somewhat deepe with the artery and nerve into the muscles of the cubite, it is devided into three other branches, of which one dehending with the wand, slides under the ring, into the inner side of the hand, and hath befalowed two small branches on the thumb, two others on the fore, and one upon the middle finger, fo that all of them affend under the fides of thefie fide, the other dehending with the artery, as the former alongift the cubite, fend branches to the reft of the fingers, like as the former. The third goes on the forefide betwixt the two bones even to the wretf, and the square muscle.

But you muft note that the veins of which we now treate, doe not onely make these devifions mentioned by us, but infinite others besides, as well in the parts which they go to, as also in the inner muscles of the hand which they nourifh.

And thus much of the internall anddeepe axillary veine. For the externall or skin Axillary (which firft appears under the skinne, especially in leane bodies, a little above the inward production of the arme) it is devided in that place into two branches, the one whereof dehending to the bending of the arme meets, and is united with the Cephalike branch, sooner or later, that fo it may produce the median, as we formerly mentioned.

The other branch having fen forth many fhoots of a different length and thickness, as well into the skinnce, as into the other neighboring parts, dehending alongift the lower fide of the bone of the cubite, properly fo called, is at length fent upon the fore and outward Cephalike branch, which we faid dehended alongift the wand, and thus united, they runne over all the hand, where in the right hand, betwixt the middle and fore finger, they make the Salvettes, but in the left, in the fame place, they produce the Splenitica.

But always remember, (if in defcription you finde any thing otherwise than wee have delivered it,) that the distribution of the vessels is fo various (especially in the hands) that there can no certaine rule be delivered thereof.
And this is called the ramus muscularis, or Muscular branch, as also the vein that accompanies this Artery. Then this Artery when it comes to the bending of the cubite, thrusts itself into the muscles bending the fingers, communicates certain branches to the parts pertaining to the dearticulation of the cubit with the shoulder, and other parts there annexed, as it did in the upper parts, by which it defended thither. Verify it may it may be a general rule: that the every vessel lends or bestowes certaine portions thereof by the way to all the parts by which it passes. But if you should ask, why I have not prosecuted these productions, I would answer, I never intended, to handle other than large and faire branches of vessels, by each incision of which, there may happen danger of death or a d. safe. For it would be both an infinite and needes businesse to handle all the small diversiations of the veins, arteries and nerves. Therfore this Artery sunk into these muscles, when it comes almost to the midlit of the Cubit, presently or a little after it is divided into two large branches, the one of which along the wand, & the other along the Cubite is carried into the hand on the inside under the Ring. For both these branches are distributed and spent upon the hand after the fame manner as the branches of the internal Axillary veine, that is, having sent by the way some little shoots into the parts by which they pass, at the length the branch which descends by the Wand of the remainder thereof, beflows two sprigs upon the Thumbe, on each side one, & two in like manner on the fore finger, and one on the middle; the other which runs along the Ell, performs the like office to the little and the middle or ring finger, as you may see by direction.

**Chap. XXIII.**

Of the Nerves of the Necke, Backe, and Arme.

Of we should handle the fine Nerves of the Arme, but because these proceed from the Nerves of the Necke and Backe, I think it fit therefore to speake something of them in the first place. Therefore from the Necke there proceed seven paires of Nerves, the first of which proceeds from the nowle bone, and the first **Vertebrae** of the necke; as also the first paires of the Backe from the last **Vertebrae** of the Necke and the first of the Cheefe. But all these Nerves are divided into two or more branches of the first paires (that is to say, on each side) one, the to the small right muscles, attending from the first necke bone of the necke to the nowle bone; the other to the long muscle on the forside of the necke.

The branches of the second paires are distributed, some with a portion which they receive from the third paires over all the skin of the head, the two others go as well to the muscles, which are from the second **Vertebrae** to the backe part of the head, and from the same to the fifth **Vertebrae**, as also to the long muscle before mentioned.

One of the third paires of Sinewes is communicated to the head, as we said before; but others to the Muscles which extend, or erect the head and the Necke there is also one of these distributed into the neighbouring side muscle of the head, & the the side muscles of the necke, which sends with a portion of the first and first paires to the Midriff. One of the branches of the fifth paires is bestowed on the bide muscles of the necke and head, the other upon the longe muscle and Midriff; the third is communicated to the **Levatores**, or Heaving muscles of the Arm and shoulder.

One of the Nerves of the first paires goes to the bide muscles of the Necke and head, another to the Midriff, the third with a portion of the seventh paires of the necke, and of the first and second of the Cheefe goe to the Armes and heaving muscles of the shoulder-blade.

One of the branches of the seventh paires runs to the broad muscle and to the neighbouring muscles both of the necke and head, another enteresed with a portion of the fifth and first paires of the necke, and a thirdjoyed to the second and third paires of the
of the Chest descending into the Arm go to the hand.

But you must note that the Muscles which take their original from many \textit{Vertebrae}, whether from above downwards, or from below upwards, admit Nerves, nor only from the \textit{Vertebrae}, from whence they take their original, but also from them which they come near in their descent, or ascendent.

There pass twelve conjugations of Nerves from the Rack-bones of the Chest.

The first entering forth from between the last Rack-bone of the neck and the first of the Chest, is divided (that is, on each side, each Nerve from his side) into two or more portions, as also all the rest. Therefore the branches of this first conjugation goe some of them to the Armes, as we said before, others to the muscles as well those of the Chest, as others arising there, or running that way.

The branches of the second conjugation are distributed to the same parts, that the first of the first were.

But the branches of all the other conjugations even to the twelfth, are communicated, some to the intercostall muscles running within under the true ribs even to the Shoulder, and under the bastard ribs even to the right and long muscles; and the Collar Nerves of the first conjugation are augmented by meeting these intercostall branches by the way as they descend by the roots of the Ribs. Other particles of the said Nerves are communicated to the muscles as well of the Chest, as spine, as the same Muscles passe forth, or runne along by the \textit{Vertebrae}, from whence these nerves have either their original, or passage forth.

Having thus therefore shewed the original of the Sinewes of the Armes, it remains that we shew their number and distribution.

Their number is five or six, proceeding from the fifth, sixth, and seventh \textit{Vertebrae} of the neck, and second of the Chest. The first of which not mixed with any other from the fifth \textit{Vertebra} of the neck, goes to the Muscle \textit{Vetrides} and the skin which covers it.

The other 4 or 5 when they have mutually embraced each other, not only from their first original, but even to the shoulder, where they free themselves from this convolution, are distributed after the following manner.

The first and second descending to the Muscle mentioned a little before, and thence sometimes even to the hand, is by the way communicated to the Muscle \textit{Biceps}, and then under the said Muscle it meets and is joined with the third Nerve. Thirdly it is communicated with the Longest muscle of the Cubite, in the bending whereof it is divided into two branches, descending along the two bones of the Cubit, until at last borne up by the fibby pannicle it is spent upon the skin and inner side of the hand.

The third lower than this, is first united with the second, under the Muscle \textit{Biceps}, then straight way separated from it, it sends a portion thereof to the Arm which lies under it, and to the skin thereof, lastly at the bending of the Cubit on the fore side, it is mingled with the fifth pair.

The fourth, the largest of all the rest, coming down below the third branch under the \textit{Biceps} with the internall Axillary vein and Artery, is turned towards the outward and backe part of the Arm, there to communicate it selfe to the Muscles extending the Cubit, and also to the inner skin of the Arm and the exterior of the Cubit; the remainder of this branch when in its descent it hath arrived at the joint of the Cubit, below the bending thereof it is divided into two branches, the one whereof descending along the Cubit is spent on the out-side of the Wrist; the other affiencing the Wrist is on the outside in like manner in two branches bestowed upon the Thumbe, and in as many upon the fore finger, and by a slit upon the middle finger though more obscurely.

The fifth branch being also lower than the rest, sliding between the muscles bending and extending the Cubite, when it comes behind the inner protruberance of the Cubite (in which place we said before the third branch meets with this) it is communicated to the internall muscles of the same, and then divided into three portions of which on the outside along the middle of the Cubite goes in two sprigs to the little finger, & so many to the middle finger, and one to the Ring finger, the other
two, the one without and the other within the Ring, goe to the hand, where after each of them hath bestowed what was requisite on the muscles of the hand, they are wafted into other five small portions, of which thefe are from that portion which defcends without the Ring, two to the fore and one to the middle finger, but thefe which come from that which passes under the Ring, by thefe a distribution communicates it feft to other fiongers, as two frings to the thumb, two to the fore and one to the middle finger. The first the leaft and laft runs betwene the skin and flethy Pannicle, by the inner protruberation of the Arme, and then is spent upon the skin of the Cubit.

Of the Muscles and Bones,

Chap. XXV.

The description of the bone of the Arme, and the Muscles which move it.

Because we cannot perfectly demonstrate the originall of the muscles of the Arme, especially of the two Arme muscles not knowing the description of this bone, first therefore we will describe it, then returne to the originall of all the bones in the body, except the Thigh-bone; it is round, hollow and filled with marrow, with a great Appendix or head on the top thereof, having in indifferently the necke of it, which is knit by Symphysje, for appendices are no otherwize united to their bones. In the lower part thereof it hath two procesfes, or protruberations, one on the fore side, another on the hind, betwene which swellings there is a cavity like to halfe the compass of a wheele, about which the Cubit is moved. The extremities of this cavity ends in two holes, of which one is the more externall, the other more internall: these cavities receive the heads of the Cubite, that is, the fore, or internall receives the fore procesfe when the arme is bendid inwards, but the externall or hinder the externall, as it is extended.

For the head of the arme it hath a double connexion, the one with its owne necke by Symphysje, that is, a naturall union of the bones without any motion; the other with the lightly ingraven cavity of the shoulder-blade, which we call Gneus, by that kind of Dearticulation which is called Artrodias; this connexion is made firm and stable by the muscles defcending into the arme from the shoulder-blade, as also by the proper Ligaments defcending from the circle and brow of the cavity of the Acromion and Coracoides to this head of the arme; this fame head of the arme is, it were more cleft and open on the inner side, than on the fore side, that so it may give way to one of the Ligaments comming from the shouder-blade to the muscle Biceps. For as much as belongs to the lower end of the bone of the arme (which we said hath two procesfes) we may faie that it is faid to the bones of the Cubit by two forts of articulation, that is, by Ungulmos with the Ell or proper bone of the Cubit, and by Artrodias with the Radius or Wand, which in a lightly engraven cavity receives the fore procesfe of the arme, and is turned about it for the motion of the hand. The hinder procesfe is chiefly added for the safety and prefervation of the veines, arteries and nerves.

These things thus flowed, it is worth our labour to know the figure of the arme: the arme, as it lies betwene the forementioned appendices and procesfes, that in the cafe of a fracture, we may know how conveniently to reftore it; therefore firft we must understand, that this bone is from what bendid and hollowed on the inside under the cleft of the head thereof, but bouches out on the out and fore side.

Wherefore feing it must be moveable forwards and backwards, upwards and downwards, nature for the performance of fo many motions hath furnished it with eight muscles, which are fixe proper and two common with the shoulder-blade. Of which number two move it forwards, two backwards, two upwards and downwards. Which muft not be understood fo, as that these two Muscles should move it directly forwards inclining either upwards, or downwards; and the other two should move it
Table of the braine together with the After-braine, the spinal marrow and the nerves of the whole body.

A. That part of the braine that is at the nocefrills.
B. That part which is at the side of the ventricles.
C. The back part of the braine.
D. The Cerebellum or After-braine.
E. The Mamilary proceffe in the right side.
F. The original of the opticke nerve.
G. Their conjunctions.
H. The course into which the opticke nerve is extended.
I. The second pair of the nerves of the braine.
J. The lesser root of the third conjugation.
K. The thicker root of the same conjugation according to the common opinion.
L. The fourth conjugation of the nerves.
M. The lesser root of the fifth pair.
N. The bigger root of the same pair.
P. The small membrane of the ear which they call the Tympany.
Q. The lower branch of the bigger root of the fifth conjugation.
R. The sixth pair of nerves.
S. The seventh pair.
T. The beginning of the spinal marrow out of the middle of the basis of the braine.
U. The right nerve of the midriffe cut off.
V. A branch from the fifth pair creeping to the top of the shoulder.
W. The first nerve of the arm from whence there goeth a branch to the skin.
X. The second nerve of the arm and a branch thence from into the first muscle of the Cubite.
Y. The third nerve of the arm and a branch going to the skin on the outside.
Z. A branch from the 3d nerve to the same muscle of the Cubite.
A. The congress or meeting of the second nerve with the third.
B. A small branch from the 3d. nerve to the same muscle of the Radius.
C. The distribution of the second nerve into two branches.
D. The lesser branch of this division lengthened out to the skin as far as the thumb.
E. The place of the spinal marrow where it issue out of the braine.
F. Thirty pairs of nerves arising from the spinal marrow are here noted by their Char. that is to say, 7. of the neck, 2. of the Cheft, 5. of the loynes and 6. of the holy-bone.
G. The thicker branch of the 2d. nerve divided into 2. parts.
H. Branches of the 3d. nerve sprinkled here and there.
I. Nerves from the third pair to the thumb, the forefinger and the middle finger.
J. The 4d. nerve of the arm.
K. The passage hereof through the inside of the shoulder.
L. A tripartition of this branch where it toucheth the Cubit. A branch distributed from
from the 4. nerve to the outward skin of the Cubit. i, the upper branch of the division of the 4. nerve. kt, a branch of i, reaching to the outside of the hand. ll, the lower branch of the division of the 4. nerve passing through the backside of the Cubit. m, the 5. nerve of the arm. n, branches of this nerve differed here and there, oo, a branch of the 5. nerve reaching to the inside of the hand and the fingers. p, a surcle of the branch e, derived to the outside of the hand and the fingers. qq, the 6. nerve of the arm and the course thereof under the skin. rr, the intercostal nerves there cut off where they are together with the ribs reflected forward. ss, branches on each side running backward. tt, nerves advancing unto the chest. uu, the commissio of the nerves rr, with the descending branch of the 6. conjugation of the brain. xx, nerves from the loynes led unto this place y, a branch going to the testicle here cut off. z, a nerve reaching to the 1. muscle of the thigh. e, the 1. nerve of the leg. a, a surcle of the former nerve derived to the skin at a. and introduced into the muscles at a. 2, the 2. nerve of the leg. b, a nerve from the former, allowed unto the skin as low as to the foot, and passing along the inside of the leg. c, a branch of the 2. nerve running unto the muscles. d, the 3. nerve of the leg. e, a surcle thereof unto the skin. g, another surcle unto the muscles. f, the 4. nerve of the leg. g, the anterior propagation of the nerves proceeding from the holybone. h, the end of the spinal marrow. i, a branch from the 4. nerve into the muscles arising from the costaud or hip bone. j, another branch going to the skin on the backside. k, a propagation derived to the 4. muscle of the leg and to the skin of the knee. l, nerves attaining to the heads of the muscles of the foot. m, the division of the 4. cranial nerve into two trunks. n, a branch from the trunk, dispersed into the outward skin of the leg. o, a surcle of the trunk, derived to the muscles. p, another surcle unto the skin of the leg on the forside. q, a branch of the trunk, to the skin of the inside of the leg and of the foot. r, a surcle of the trunk, to the hindmost skin of the leg. s, a branch of the whole trunk, led along to the forward part of the leg and the foot. t, the descent of the trunk. u, the descent of the trunk, into the foot. v, it so upwards, as it should incline neither forward nor backwards; but thus, that it cannot be moved neither to this nor that part unless by the help and proper action of this, or that muscle. Thus therefore if the Pectorall with his associate performe their duty or action, the arm is always moved forwards, as it is lifted up by the action of the Deltoide and his companion, and fo of the rest. The originall and insertion of the pectorall muscles. But to come to the originall and insertion of these muscles, there are of these two which move the arm forwards called by reason of his originall, the Pectorall, arising from more than halfe of the Collar bone, and almost all the Sternum and the 6. 7, and 8. Rib, goe up and fallsen it tells to the Coracoides, by a membrane or a membranous tendon sufficiently strong (for which, while it is laid to be common to the shoulder  & arm), and it goeth into the arm between the muscles Deltoides and Biceps with a strong tendon composed of fibers crossing each other, of which some descend from the Collar-bone and the upper part of the Sternum, others ascend from the lower original hereof, that is, from the 6. 7. and 8. Rib, and although the action of this muscle is diversely, by reason of the diversity of its fibers arising from divers places, yet always it draws the arm forwards, whether it be moved upwards, downwards, or to the Bref, the other which is his companion descends from the whole lip or brow of the famous or hollow part of the Blade, which it fills in the forepart of the arm near the heart thereof. For the two Livers or the Lifting up of the arm, the first named Deltoides descends from almost halfe of the Clavicle, the proceffe Acomtion and all the spine of the shoulder-blade into the forside of the arm the breadth of four fingers below the joyne. It hath divers actions according to the diversity of the fibers, as also every muscle hath; yet howsoever it is contracted, whether by the fibers from the clavicle alone, or by the spinal alone, or by both at once, it always lift and heaves the arm upwards. The other which is his associate descends from the gibbous part of the Shoulder-blade contained between the upper rib thereof & the spine between the proceffes Acomtion and Coracoides to the neck of the arm; and this we will call the Epomis or Scapularis, that is, the shoulder Muscle. But the first and larger of the two muscles,
muscles, which draw the arm backwards, arise from the greatest part of the outer lip of the gibbous part of the shoulder-blade, which is under the spine thereof, & lying upon the blade itself, it goes into the hind part of the arm above the neck there.
The other which is contiguous to & his partner in working, but lesser, paffes from the upper and exterior part of the lower rib of the shoulder-blade, and thence as it were in some part extending itself upon the gibbous part thereof nere to unto that rib, it goes into the arm. This muscle seems to be the same with the former, being fleshly without even above the top of the shoulder. One & the other of these two which draw downwards, enters out from the straight line of the lower rib of the blade, & goes in to the lower part of the arm about the neck thereof. The other called the Latifimus or broadest, ascends from the spine of the holy-bone, of the Loynes, & often also from the nine lower of the chest, by the lower corner of the shoulder-blade, in which it is interfiered by a membranous tendon, as also it is into the inner part of the arm near unto the necke by another strong tendon, whereupon this muscle is called a common muscle of the shoulder and arm. But when this muscle happens to be wounded, the arm cannot easilie be stretched forth, or lifted up.

**Chap. XXVI.**

The Description of the bones of the Cubit and the muscles moving them;

For their muscles, follow those which bend & extend the cubit, but because their insertion cannot be fromely demonstrated, unto the bones of the cubit be first described; therefore first of all we will delineate the bones themselves.

But verily left this doubtful word cubit should cause obscurity, first we must note, that it hath a threefold signification; for oftentimes it is used for all that part of the hand, which lies between the arm & wrist, oftentimes for the lower bone of this part, sometimes for the upper part of this bone which is turned within the Orbe or cavity of the arm (his other wife than a cord in the wheel of a pulley) and this is called the Olecranon. Here truly we use this word Cubit in the first signification. Wherefore we lay the cubite is composed of twobones, the one of which we call the Radius or Wand, or the leffer Fore of the Arme the other we properly call the Cubit or Ell. These two bones stick together at their ends being firmly bound together by strong Ligaments, but the middle parts of them are a pretty way distant from each other, & chiefly towards their lower ends, for the better fixation and passage of the muscles and vessels from the inner side, to the exterior, as shall be shewed in its place. The wand hath two Epiphanes, the one at the upper end, the other at the lower. The upper is round & hollowed on the inner face like a bason, it receives the fore proceed of the bone of the arm, bound to the same by strong ligaments, descending as well from that proceed of the arm, as the Olecranon into the circumjacent parts of this appendix of the Wand. This connexion is made for this use, that we may turn our hand up and down, by the cubite turned and twined about this proceed. But the lower appendix of this wand is hollowed on the inside that so it might more commodiously receive the bones of the wrist, but gibbous without, that it might be safer, now this wand is fatter and thicker at the upper end, but fatter and harder above, where on the inside it hath a swelling out, whereby to receive the muscle Bicep, besides on the outside of the middle thereof it is somewhat gibbous and round, so to become more safe from the injuries of external bodies; but it is hollowed, or bended on the inside for the better taking or holding anything in the hand. But that side which lies next to the Ell is flatted for the better original and feat of the muscles; lastly it is feared upon the bone of the Cubit, or Ell, just against the thumb. But the Ell, or bone of the cubit properly & particularly so called, hath in like manner two appendices, the one above, the other beneath. The upper which also is the greater, is fitted to the Orbe of the arm, in which it goes to & again for the extensio & bending of the arm, no other wise than a rope runs in a pulley, but that it turns not absolutely & perfectly round, which is caused by the two proceeds of unequal bignesse, which are therefore flated in the hole, or cavities of the bone of

What is meant by the Cubit.

What the Olecranon.

The 2 bones of the Cubit.

The 2 Appendices of the Wand.

The figure and of the Wandes.

The figure and of the Cubits.

The Appendices of the Bone of the Cubit.
Of the Muscles and Bones

Chapter XXVII.

Of the Muscles and Bones of the Wrist, Afterwrist, and fingers.

What the Hand properly so called is.

E said before that the Hand taken more particularly and properly, is divided into the Wrist, Afterwrist, and fingers, so that the hand in this signification is bounded by the ends of the bones of the cubit and fingers. All the parts of the wrist, which it hath common with the afterwrist, have bin already also plentifully explained; this only remains to be noticed, that the skin swells on the hands as of the feet, is of a middle nature between pure flesh and pure skin, no otherwise than that which covers the forehead, but that this which covers the palms of the hands and soles of the feet is unmoveable. But it is most thick on the feet, as it should be easily offended by continual going. Besides the common parts, the wrist is composed of eight small bones mutually knit together in a

The figure of the Cubit bone, or Ell.

The figure of the Cubit bone, or Ell.

The muscles moving the Cubiti.

The Biceps, a headed muscle.

The Biceps, a headed muscle.

The Biceps, a headed muscle.

The Brachialis.

The Longus.

The Serios.

The figure of the Cubiti, bone or Ell.

Of the Muscles and Bone of the Arme, the greater process which we called Oleracyn is letted by the exterior hole that fo the extension of the arme can be no further, but the lesser process by the inner hole makes the bending therof the leffe perfect. The Composition of these bones is by Ginglymos, & it is strengthened not only by common Ligaments coming from the muscles, which move the bones themselves, but also by proper Ligaments descending from the processii of the arme & the lips of the holes and cavities standing about the Appendix of the Cubit. The other lower and leffer appendix is in some fort hollow on the inside for the fitter receiving the bones of the wretch, but the outside is round & ends in a point, whence it is called by the Greeks Stylodex. But now this Ell (contrary in this to the wand) is thicker towards the arme, but slenderer towards the wretch. And besides in the thicker part thereof it is hollowed or bended towards the inside, & in the fame place is gibbous or bunching forth on the outside, but it is round & straight, unless on that side which lies next the wand, for the ell, it is hollow & full of marrow like the wand. The fire of the Radius or wand is oblique, but that of the Cubit or Ell is right, that the arme might be the better & more easily moved, because the motion by which the arme is exended & bend ed is according to a right line, but that by which the inside of the hand is turned upwards & downwards, is performed obliquely & circularly. Wherefore it was expedient that the wand should be oblique, & the cubit straight for the cubit-bone is appointed for to extend & bend the arme, but the wand to performe the wheeling & turning about thereof, & this is the caufe that it was fitting ther should be a different connexion of these bones with the arme. These things were fitting to be spoken concerning the nature of these bones, that in the cure of fractures we may work the more safely & happily, taking indication from that which is agreeable to nature: wherefore now it remains that we come to the description of the muscles which are feared in the arme, the cubit-bone, or Ell. These are 4, in number, two extending it, & two bending it. The first of the Benders is called Biceps, by reason of its two heads, the one whereof descends from the coracoid, that other from the lip or cavity of the shoulder-blade by the fissure or slit of the head of the bone of the arme; these two heads under the neck of this arme becoming fleshy, are firmly united at the belly & middle of the arme, & thus united are at length implanted by a strong tendon to the inner proburcation of the wand, the other is called the Brachiales, by reason of the strawlike coherence thereof with the bone of the arme; this fastened under the Biceps, descends obliquely on the backe and upper part of the bone of the arme into the top of the wand and the inner fide of the Ell. But the first of the extenders is called the Longus, or Long muscle, this descends from the lower Rib of the shoulder, and cleaving to the bone of the Arme goes thither (fastened and as it were always most straitly joined with his fellow muscle, specially here the Cubite) where you shall presently heare. The other termed the Bravius or Short Muscle, being the companion of the long, descends on the hinde part of the neck of the bone of the Arme, as it were growing to and lying under the former long muscle, so that making one common broad Tendon outwardly fleshy, inwardly nervous, they are inserted into the Oleracyn, so by mutuell assistance to extend the Cubite.
and other extreme parts of the Body.

a certain order, and by Diesbrots with the two bones of the Cubite, but mutually and amongst themselves by Synarthrosi, by interpolation of Griffes and Ligaments alway common, that is, comming from the muscles, as proper, defending alwayes from the upper to the lower. But these same bones are some leff than others, besides they are hard and without narrow, gibbous on the outside for the security and conctincle of the hand, but hollow on the inside to give way to the tendons going into the fingers. These bones are disposed in two rankes. The first Ranke contains only three, but the second five. The three of the first Ranke are thus arrayed, or placed, that one of them may receive the Appendix Styloides of the Cubite; the other the Ell and the Wrist together, and the third may be received by the Wrist. But three of the five bones of the second order filleine the four bones of the afterwrist & are knit to the same by Synarthrosi, after which manner of connexion they are joyneyed to the bones of the first rank, the fourth sustaines the first bone of the Thumbe, to which also it is coarticulate by Synarthrosi; the fifth and last is fasted on the inside against the Ell, chiefly above that bone of the first order, which receives the Appendix Styloides of the Cubite, this is the leaft and weakest of them all by reason of its grilletly substance, which makes the Ring with certain Ligaments running from one of the inner sides of the wrist to the other.

This Ring is placed there as well for the preservation of the finer nerves, veins & Arteries paffing under it (leaf when we lean upon our hand, or wrist, these parts should be hurt by compression) as also for the commodity of the Action of the muscles bending the finger, which in the performance of their action & the contractions themselves may deform the hand by their paffing forth of the Cavity of the wrist. For what attraction ever is made by stringes, if it be free and not hindered, is according to a straight line. Now follow the bones of the second part of the hand, or of the afterwrist. These are foure in number, gibbous without, but arched within, or hollow in the middle; for hence is the palme of the hand, or certainly the greater part thereof; their ends next the fingers are somewhat remote from each other, that in these clints the Muscles In arterios might finde a place and stade. But these ends have each an Appendix, as you may perceive in the Skeleton of a childe. But you must note that by the first bone of the wrist or Afterwrist, we meane that which is in the foreside of the hand, that is to say, that in the wrist which lies under the Thumbe, and that in the Afterwrist, which it seated under the forefinger, as these which keepe in order the fingers which exceed the rest in necessity and dignity.

After these follow the fiftene bones of the fingers, that is, three in each, which are hollow and fistulous full of a thin and liquid marrow, and not of grosse and thicke as in the arme and thigh. They are outwardly gibbous, but inwardly hollow and flat for the fitter fase of the Tendons ascending along the fingers on the inside even to the upper joint. The which that nature might the better strenthen and preferve, it hath produced from the lips of the inner Cavities of these bones a membranous & strong Ligament, which running overwhart from one side to the other doth finally clofe the Tendons to their bones, that they cannot goe forth of their places, or incline to either side. They are connexed on the outside, that they might be more fit to hold any thing. But for the first bones of the 4 fingers and Thumbe, foure are joyneyed together with fo many bones of the afterwrist by Synarthrosi, for the bones of the afterwrist are moved by no manifest motion, the first is knit to the second ranke of the bones of the wrist, therefore that bone cannot be attributed to the afterwrist, as some have written, seeing it hath manifest motion and is knit by Diesbrots, but the bones of the afterwrist are only fastened by Synarthrosi. For the second and third ranke of bones of the fingers, they are knit the second to the first, and the third to the second by diesbrots and Arthrosi, because besides the manifest motion they have, they receive each other by a superficiray cavity, as those of the first ranke, the bones of the afterwrist, and those of the second ranke, them of the fifth,those of the third them of the second. And all the bones of the fingers are larger and thicker at their bafe, but smaller towards the ends and they are bound by Ligaments especially proper, which (as we said formerly) descend from the first to the second; so that the last bones seeing they have not to whom to communicate their nerve, make & produce nails thereof;
Wherefore the nails are generated by the fibers of the Ligaments, and the excrement of the tendons which are terminated at the bottom of the nails. Now remain the Osse Scaemoida, or feed-bones there are 19, in number in the inner joynts of each of the hands, and as many in each foot, viz. two in the first joynt of the foure fingers and in the second of the thumbe, and one in each of the reft. For the inner side of the joynts, you may for the most part obferve one in each of them, yet in the second joynt of the thumbe there be two, above the two tendons, which are somewhat grittely.

They are made for this ufe, that they frame and strengthen the joynts, fo that the bones of the fingers may not be turned awry, or eruifed forth of their places by strong and violent motions, as it sometimes happens in the whirle-bone of the knee. They are called Scaemoida from the refemblance they have to the feed of Sesamum, which is somewhat long and flat.

The Figure of the bones of the Hand. The 1. fhoues the inside of the right hand, and the 2. fhoues the backe side of the fame.

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Chap. XXVIII.

Of the muscles which feated in the Cubite move the Wand and with it the Hand.

Ow muft we defcribe the muscles of the formerly decribed parts, that is, thofe which are feated in the Cubit, which are carryed to the infide of the hand, and thoef which are called the Interoffi, Now the muscles of the Cubit are 4, 7 externall and 7 Internall; two of the feven externall doe primarily twine


twist or turn up the Wand, and secondarily or by accident turn the Palm of the hand upwards, wherupon they have called them Supinator or Turners up of the hand, two extend the Wrist, wherupon they are named Carpeflexors or the Wrist-extenders, two the fingers, wherence they are called Digitsuntenores or finger-stretchers, to conclude, the seventh and last is termed Abductor or Obliquator externus. The first of the two Supinator is called the Long, or Longest, because it descends from the outside of the Arme above the proceeds thereof and is inferred by a round and strong tendon into the lower Appendage. The other descends obliquely from the outward and upper proceeds of the arm, and is inferred at the third part of the Wrist by a membranous & flavy tendon before and on the inside thereof. The upper of the two Extenders of the Wrist, descending above the wand from the external and upper proceeds of the arm is inferred by two Tendons into the first and second bone of the After-wrist, which fulcine the fore and middle fingers.

The other, lower, descending from the same place as the former, above the Cubit is inferred into the fourth bone of the After-wrist which beares up the little finger. These muscles while they move alone, that is, each with his Antipath, to wit the wrist-benders, they move obliquely upwards or downwards the whole hand properly so called. The first and greater of the Extenders of the fingers, or finger-stretchers arising from the Olecranon, or bone of the Cubit, descends superficially between the two bones of the Cubite even to the Wrist, in which place it is divided into 4 Tendons, which passing under the Ring feated there, end (each distinghished by a common ligament above the bone of the After-wrist) in the last joints of the four fingers, adhering nevertheless firmly to the bones, which are above these joints. The other which is the lesser arising in the middle of the Wrist, goes obliquely to the Thumb into which it is inferred by two Tendons the one thicker which is inferred into the root thereof, and draws it from the other fingers; the other slenderer continued even to the upper joint thereof, and by its action extending the Thumb.

The seventh which is the Abdutor or Obligator is seated at the hinder part of the hand, that is, towards the little finger; we have often found this divided in two, yet verily we have found it trifide or divided into 3 this year in three or 4 dead bodyes, one portion thereof went to the lower side of the Ring-finger with two Tendons, the other in like manner to the middle and fore-fingers, and the third to the Thumb.

And for all that it is thus divided, yet some have taken and accounted it for one Muscle, because it hath one original and action, which is to draw the fingers backwards; some have added to this the extender of the Thumb by reason of their common original and thus of 4 muscles they have made one divided into 7 tendons, distributed as is formerly shewed. But when the Obligator of the Ring-finger is wanting, as it often happens, the extender of the finger supplies that defect by certain productions of tendinous strings. But some also have written, that this muscle which we saide 7 tendons, is onlye a production of the deeper fore muscle, which should be sent through the space between the bones of the Cubit; yet I had rather make it a muscle of its selfe, by reason of its strait adhesion with the bones of the Arme and Wrist. And let us much suffice for the external muscles of the Cubit, which you may comprehend in the number of heaven, as we have done; or in fine, if you take away one of the 4, or in nine, if you had rather resolve it into 4, with Galen, or in eight, if you divide this muscle only into three. For in very deed the Abdutor or Obligator of the Ring-finger is not often found in men.

Now much wee come to the inner muscles of the Cubit, the first of which compasses the skin of the palm of the hand, whence it is called the Palmaris. The second and third joined by the communion of their action turne downe or prone the Wrist, and consequently the hand, so that the palm looks towards the feet, whereupon they are called Pronators.

The 4 and 5, joyned also in affinity of action bend the Wrist, wherefore they are named carpiflexores, Wrist-benders. The fifth and sixeth are appointed to bend the first, second, and third joints of the fingers, wherfore they are termed Digits.
The Palmar Digitusflexores, Fingerbenders. For their original, the Palmaris the least & uppermost of them all, defends fleshly from the hinde processe of the inner arme, & a little after ending in a long & slender Tendon, it is spent in the skin of the Palme of the hand even to the roots of the fingers. For it was necessary that this skin should strictly adhere with the subjacent parts, not only for the firter taking or comprehension of any thing, left that skin in holding should be wrinkled & drawn away from the palme and fingers, and so be an impediment: but besides that the hand might have a more exact sense to distinguish of hot, cold, moist, dry, smooth, seare, rough, soft, hard, great, little, and such other qualities. Then follow the two Proximatores, of which one called the called round, comes obliquely from the inner side of the hinde processe of the arme almost to the middle of the Wand, to which it adheres by a membranous & fleshly tendon, even to the place appointed for insertion. The other figure three or foure fingers broad, yet somewhat slender, seated within under all the muscles which descend on the inner side to the wrist or fingers, upon the ends of the bones of the Cubit, ascends transverse from below the Ell, unto the top of the VVande where it ends in a membranous tendon. Both the Carpusflexores, or Wvret-benders arise from the hinde, but inner processe, and descend obliquely (the one more, or lesse than the other) the one alongft the Ell, but the other alongft the wande, and that which descends alongft the Ell, is inferred into the eight bone of the wrist, which we said made part of the Ring, the other which follows the VVande is inferred with his greater part into the bone of the wrist, and with the rest into the first bone of the After-wretch which sustains the fore-finger.

Now remaine the Digitusflexores, or Fingerbenders, which because they lie upon one another, the upper is called the Sublimis, but the lower the Profundus. The Sublimis or upper, arizing from the inner part of the hinde processe of the arme, and from the upper parts of the Ell and Wand descends betweene these two bones of the Cubit even to the wrist and Ring; divided into 4. tendons it is inferred into the second dearticulation of the four fingers, which it bends by the force of this his proper insertion, as also the first, as well by the power of the common ligament, as by certaine fibers coming from it, which it sends thither by the way in its passagge. But these 4 tendons were unto this their insertion are divided into two, so to give passagge and strength to the tendons of the Deep muscles descending into the third and laft joint of the fingers.

But this same Profundus or Deepe muscle arising from the upper and inner parts of the Ell and Wand, descends betweene these two bones under the Sublimis, also undivided even to the wrist, where it is divided into 5. Tendons which it brings forth under the common Ligament, and the divisions of the Tendons of the Sublimus even to the laft joynts of the fingers, which they bend, by this their proper insertion, as also the bones of the first and second joynts of the fingers by the means of the common Ligament and fibrous productions which they bellow upon them by the way. Besides these formentioned there is seen also a certaine membranous Ligament which engages the tendons in the compasse of the fingers.

CHAP. XXIX.

Of the Muscles of the inside of the hand.

He muscles of the inside of the hand are 7 in number, the first is called Thenar because it makes the greater part of the Palme, the second from the site is called the Hypothenar; the third the externall Adductor or of the Thumbe. The 4. other are called by reason of their figure the Lambrici or wriny muscles, or the Adductores, or Drawers of the four fingers to the thumb. Now the first called Thenar, thicker than the rest, arises from all the bones of the Afterwretch, taking its beginning from that bone which bears up the Ring finger, whence ascending alongft the Vital line even to the end thereof at the first bone of the After-wretch sustaining the fore finger, & it is at length inferred into the laft joynts of the Thumbe by the longit fibers
fibers, but by the middle and shortest fibers almost into all the inner part of the first bones of two joints, and by reason of this, the thumb is drawn to the other fingers, and from them again by his lower originall.

Some divide this muscle into three, by reason of his diverse actions, making the first to arise from the root of the bone of the afterwrest which bears up the ring finger; but the other from that middle bone of the afterwrest which sustains the middle finger, but of the third, from the upper end of that bone which underprops the fore finger, and that the inference of them all, is, as we formerly mentioned. But the former opinion likes me better, both for shunning confusion, and abbreviating the doctrine of the number of muscles.

The Hypohenar arises from the fourth bone of the afterwrest, and that bone of the wrost which sustains it, and then with its longest fibers, it is inserted into the first joint of the ring-finger, and by the shortest into the first, through which occasion, as also in respect of its twofold action, some have divided it into two, that the one of them might lead it from the left, and the other might draw it to the thumb.

The third the external or extensor of the thumb, descends from the first bone of the afterwrest, into the first and second joint of the thumb; wherefore some have divided it into two. The Lumbrici, or four external of the four fingers arise from a membrane, investing and binding together the tendons of the Digitum extensorum, or finger-benders, and at length on the sides towards the thumb even by a small tendon, running even to the second joint of the four fingers.

Now these of the afterwrest, remaining to be spoken of, these are five, two The interossei, in each of the spaces between the fingers, one Internal, the other External, of which the Internal descending with oblique fibers from the side of the first bone of the afterwrest, goes also into the sides of the fingers, that so may the more closely bind together the bones of the afterwrest, whose action is manifested when we thrust our fingers into a strait glove, or when we bend our hand. Some think that it helps also the drawing of the fingers towards the thumb. The External ascends also by oblique fibers from the sides of the second bone of the afterwrest, to the first joints of the fingers, interfacing the internal which we now described after the manner of the letter X, for to extend the palme of the hand, and help the drawing away of the fingers from the thumb.

Here concluding the description of the muscles of the whole hand taken in general, you shall note that they are 32 in number, that is, eight appointed to move the arm; four set to move the cubit in general; seven seated on the outside of the cubit, and as many on the inside in the same cubite, moving the wand, and with it the hand; seven on the inside of the hand; and lastly, the six interossei. Some encrease this number, saying, there are nine on the external part of the cubite, and eleven on the inside of the hand.

**A Description of the Legge taken in general.**

For the hand follows the description of the legge. Wherefore to take away all doubts, we will first define the legge, then divide it into the parts more and less compound; thirdly we will prosecute all things common to all these parts; fourthly, those which are peculiar to each, and then, God willing, we will give an end to our Anatomy.

Now this word Cruris, or Legge, is used two manner of ways, that is, either generally and specially, and specially again after two sorts, that is, either absolutely and simply is, or with an adjunct. It is simply taken for all that which is between the knee and the foot. But with an adjunct for the greater bone thereof. But the legge taken in general is the instrument of going, containing all whatsoever is from the hipps, to the very ends of the toes. It is divided into three great parts, that is to say,
The division of the foote.
The toes.

The Crural vein begins then, when the hollow vein passing forth of the Peritoneum, and stretched to the hanch bone, and the sides of the Pabul in the groin, is first divided into two large branches, the one of which descends on the inside alongside the bones of the whole legge, together with the artery and nerve, the other runs down outwardly and superficially along the legge, between the fat lying under the skimne, and the muscles even to the foote, and is spent in the skime thereof. This because it is always apparent and manifest, is called properly by the Greeks Sophia, but commonly Sapana.

This vein by the way presently at its originall is devide into two branches, the one internall, the other externall; of which the internall is spent upon the Babones, and other glandules of that place and the skime, and by this branch come the defluxions called Babones; the other branch is wafted in the fore and utter skime of the upper part of the thigh; then a little lower, that is, about the breadth of three or foure fingers, it is gathered againe into one branch made of many little ones, which is spent in the fore and hinde skime of this thigh. Thirdly, a little below the middle of the thigh it is againe devide into two other branches, of which the one goes into the skime on the fore side, and the other on the hinde side. Fourthly, it is distributed by two other small spriggs into the skime, on the fore and hinde part of the knee; which oftentimes are not found, especially when the Popilites or ham vein, is somewhat larger than ordinary. Fiftly, a little below the knee, it produces two other branches, lying upon each other in their passage out into the fore and hinde skime of that place. You must note, that branch which runs into the skime of the hinde part, is carried by a certaine other sprigg, which it produces, into a branch of the Popilites passing forth of the two twin muscles. Sixthly, in the bigger part of the calf of the legge, it is divided into two other branches, which in like manner are distributed into the skime, as well in the fore side as the backe side of the legge.

At length after many other divisions, which for brevities sake, I omit, when it arrives at the fore and inner side of the ankle (where it is commonly opened in the diseas of the parts below the midriff which require blood-letting) it is parted into two other branches, the lefter of which descends to the heele, the other in many sprigs is spent upon the skime of all the upper and lower part of the foote and toes.

The second branch of this Crural veine, which wee said descends within together with the artery and nerve, even into the foote, is devide; first piercing somewhat deeper in, it produces foure divarications; one interall devideing below the originall of the Sophia into the muscle called Obturator externus, and into certaine other externall muscles. The three other runne outwardly, the first towards the huckle bone, by which the lachias is made, the two other into the fore muscles of the thigh, neither are these sprigs far remote from one another. Secondly, all that branch is,
is divided into two other branches, the one above, the other below, an artery al-
ways accompanying it; the lower of which is spent upon many of the hinder
muscles of the thigh, ending nigh the ham. The upper, besides, that it beftows ma-
ny branches upon the fore and inner muscles of the thigh, descending to the ham,
produces the Poplitea or ham vein, made sometimes of two branches, the one
proceeding from above, and the other from below. This Poplitea descending by the
bending of the ham, is spent one while upon the skinne of the calfe of the legge, an-
other while upon the knee, otherwhiles encrusted with branches of the Sapheia, it
goes on the outside of the ankle to the skinne, on the upper side of the foote, and
sometimes on the lower.

Thirdly, a little below the originall of the ham veine, and under the bending of
the knee, it brings forth the Suralis, which is bestowed upon the muscle of the Sura
or calfe of the legge, and upon the skinne of the inner side thereof; and of the foote
continued sometimes even to the inner part of the great toe.

Fourthly, under the head of the hinder appendix of the bones of the legge, it pro-
duces betweene these two bones, another veine, which nourishing the fore musce
of the legge, is confirmed upon the foote.

Fifthly, and lastly, it brings forth the Iliotibialis major or greater Iliobas, which is de-
vided into two branches of an unequel bignesse; the larger whereof, from his origin-
nall descending along the inner part of the legge bone, infinuates it felfe under
the muscles of the calf, betweene this and the heele, into the sole of the foote, upon
which it is wafted, devided into ten small furcels, two for each toe; the other being
the lefer descending alongift the Peronous, or shin-bone, is bestowed betweene it and
the heele, yet sometimes it is produced, not onely even to the muscle the Adductor
of the toes, but alfo by fiver furcles, even to the fourth toe, and the fides of the middle
foote.
The first conjugations of the nerves of the loines.

There arise five conjugations of nerves from the loines, divided into external & internal branches; the external are disseminated into the Rachis or spinous muscles, the muscles Semispinales and Sacrotuberis and the skin lying over them. The internal are sent into the oblique ascendant and descending muscles of the lower belly, into the Peritoneum, into the loins and chest muscles arising there, but after a different manner; for some are absolutely carried thither, as the nerves of the first conjugation of the loines, and oftentimes also of the second, but that sometimes they send a small sprig to the testicles, when the Costall have sent none thither, but some lower are partly distributed there, and partly sent some other way; for the greater portions first united amongst themselves, then presently with the portions of these of the holy-bone, go into the thigh, as we shall shew in the distribution of the nerves of the holy-bone.

Now from the holy-bone, proceed the holy-bone conjugations of nerves, reckoning that for the first which proceeds from the last Vertebra of the loines, and first of the holy-bone, and the sixth which proceeds from the lowest part of the holy-bone, and of the first of the rump; these conjugations of nerves are divided into external and internal branches.

The lesser external passing forth by the external and hinder holes of the holy-bone, are distributed into the parts properly belonging thereto, to wit, the muscles and skin thereof; for every nerve by the law of nature first and always yields to the neighbouring parts, that which is needful, then presently to others as much as it can.

Wherefore if thou wouldst know whence each part hath his vessels at the next hand, that is, the veins, arteries, and nerves, thou must remember the site of each part and the course of the vessels, and to consider this, that the veins and arteries as speedily and conveniently as they can, infinuate themselves into the parts, sometimes at the head or beginning, somewhiles by the middle, or extremes thereof, so as there is occasion.

But a nerve principally enters a muscle at the head thereof, or at least not farre from thence, but never by the tale, whereby it may easily be understood by what branch of each vein, artery, and nerve, each part may have nourishment, lift, and sense. The other internal branches of the forefaid conjugations goe, especially the four uppermost united from their original with the three lowermost of the loines, into all the legge, as you shall presently see. But the two lower are confumed up on the muscles called Levatizes Ani, the Sphincter muscle of the same place; besides, upon the muscles of the yard, and necke of the bladder in men, but in women upon the necke of the womb and bladder.

For these parts admit another in their bottome from the costall nerve, being of the sixth conjugation of the braine; thefe thus considered, let us come to the nerves of the thigh, which as we said from their first original, as were incorporated and composed of the greater portion of the three inner and lower branches of the loines, and the four upper of the holy-bone, are devised in the thigh into four branches, of which the first and higher descending from above the Peritoneum, to the little Trochanter, is wafted upon the inward and superficial muscles of the thigh, and the skin which covers them a little above the thigh.

The ficond, descendent with the crural vein and artery by the groin, is devised into two branches like as the vein, the one internal, the other external, of which the internal descending with the vein and artery is sent into the inner and deepse muscles of the thigh ending above the knee. But the external descending superficially with the Saphenius, even into the foot, gives branches by the way to the skinne which covers it.

The third seate under thefe former, passing by the hole common to the shere and
hanch-bone, sends certaine branches to the groines, to the muscles called Obturato-
res, to the Tricipites, and sometimes to the muscles of the yard, and it ends at the
midft of the thigh.

The fourth, which is the thickeft, solidift, and hardeft of all the nerves in the body,
defending wholly from the productions of the holy-bone, and defending outwardly be
tweene the lower part of the fame bone, and the Os Ilium, or Hanch-bone
to the thigh, beftowes certaine porrigges to the hind muscles thereof proceeding
from the protruberation of the Ischium or huckle-bone, and in like fort it gives other-
fone to the skinne of the buttocks, and also to the skinne covering the foremention-
nde muscles.

A little after, it is parted into two branches descending undivided even to the bend-
ing of the knee, both them are communicated by diverse furies of the muscles of
the legge; yet fo as the leffer produces another branch from the rest of the portion
thereof descending on the fore part of the legge, alongift the thin-bone unto the top
of the foot, where it is devièd into tempe furies scarce apparent to the fight, two
running to each of the toes. The other greater descending in like manner in the re-
mainder of its portion by the hind part of the legge into the fole of the foote, cafs
itselfe with the veins and arteries betweene the huckle and legge bone; where first
devided into two branches, each of which presently parted into five, fend two fprigs
to the fides of the toes. And these are the most notable and necessary distri-
butions of the vefiels and nerves; we purposefully omit others which are infinite, and of
which the knowledge is impertinent.

Chap. XXXIII.

Of the proper parts of the Thigh.

Aving explained the common parts of the legge in generall, now wee
must come to the proper, beginning at the Thigh. The proper parts
of the Thigh, are muscles, bones, and ligaments. But because the demon-
stration of the muscles is somewhat difficult, if we bee ignorant of the
description of the bones from whence they arife, and into which they are inserted;
therefore we judge it worth our labour, first to shew the bones, and the dearticula-
tion of these of the Thigh; beginning with these bones which are knit with the up-
per part of the holy-bone. And they are two in number, on each side one, com-
monly called the Os Ilium; each of these is composed of three bones, of which one
is the upper, another the lower and anteriour, and the third the middle, and after a
manner the posteriour. The upper by a particular name is called the Os Illum, the
hanch-bone, and it is the largest and biggest, having a gristicy appendix in the com-
pafs thereof, even to the connexion it hath with the other neighboeing bones,
whole upper part we terme the right line thereof; but the basfit, which is adjoyned to
by Symphysi, we call the lippe or brow thereof, because it handeth both somewhat out
and in, after the manner of the brow. But that which lies betwecne the basfit and
straight line we name the ribbe; this fame upper bone hath two hollow superficies
the one inermall, the other externall. The connexion thereof by Symphysi, is two-
fold, the one with the upper part of the holy-bone; the other with that bone we
called the middle, and after some fort the posteriour; which taking its beginning
from the narrower part of the Os Illum, makes that cavity in which the head of the
thigh is received; this cavity the Greeks call Cotyle, the Latines Acetabulum, and
it is ended by the fide of the hole common to it, and the thare-bone; this middle,
and in some fort posteriour bone is called properly and particularly the Os Ischii, or
huckle-bone, and contains nothing eile but the forementioned cavity, but that on
the hinde and lower part thereof, it brings forth a proceffe, which adjoynes it felle
to the thare-bone at the lower part of the common hole, in which place it ap-
pears very tough and unequall, and it is called the tuberofite of the huckle-bone, at
whole extremity also it brings forth a little head somewhat resembling the proceffe of
of the lower jaw called Corne. The third bone named Os pubis or the share-bone, stretches itself even to the highest part of the pelvis, where meeting with the like bone of the other side, it is united to it by Symphysis, after which manner also, all these three bones are united; it is reported, that this bone opens in women in their travell, yet hitherto I can finde no certainty thereof.

The Figure of the Thigh-bone.

A 1, 2. The head of the thigh going into the cup of the hip-bone.
B 2. A sinus in the head of the thigh, into which is inserted a round Ligament.
C 1, 2. The conjunction of the appendix of the thigh with the bone itself.
D 1, 2, 3. The necke of the thigh.
E, F, the two lower heads of the thigh.
G, 1, 2. The conjunction of the lower appendix.
H, 1, 2. A sinus betwixt the two heads of the thigh.
K 2. A part of the lower head of the thigh, from whence the first muscle of the foot doth proceed.
L 2. Another part from whence the second and first muscles arise.
M 2. Another part to which the Tendon of the fifth muscle of the thigh is fixt.
N 1, 2. A sinus of the outward side of the head for the fourth muscle of the legge.
O 2. A sinus of the inside through which the tendons doe passe.
P 2. A protruberance at which the said tendons are reflected.
Q 2. The upper proceffe of the thigh, and betwixt Q and D is the sinus.
R 1, 2. The union of the proceffe with the thigh.
S 2. A rough line from the impression of the external proceffe.
T 1. The anterior impression of the internall proceffe.
U, V, W. Another impression higher than the former.
X 1, 2. The fourth impression in the toppe of the proceffe.
Y 2. Four X. shew the four appendices of the thigh.
Z 2. Three Y. shew the three heads of the thigh.
X 2. Two proceffes of the thigh. 
A 1. The interior proceffe of the thigh.
B 1. The conjunction of the proceffe with the thigh.
C 1, 2. A line descending obliquely from the inner proceffe.
D 2. A line running through the length of the thigh.
E 2. The largeffen of the thigh in this part.
F 2. A roughneffe from which the eight muscle issueth.
G, H, a knob of the Whirle-bone going into the sinus marked with I, which is betwixt the heads of the thigh.
J, S. Two proceffes of the thigh.
K 2. A sinus for the inner head of the thigh.
L 2. A sinus-agreeing with the external head of the thigh.
M 2. The lower asperity or roughneffe.
N 2. The forcisde of the patcell or whirlce-boae rough and unequall.
You may perceive a manifest separation of these three bones in the *Skeletum* of a child; for in those who are of more years, the gristles which runne betweene their connections turne into bones.

Now followes the thigh-bone, the biggest of all the bones of the body; it is round, and so bended, that it is gibbous on the exterior and fore part thereof, that so it might be the safer from external injuries; but on the hinde and inner part, it is hollow or famous, like to the backe of an Affe, whereby the muscles might have a more commodious original and infection.

That famous part a little below the midst thereof, is devided into two lines, the one whereof goes to the internall tuberostitis, the other to the externall of the lower appendix of the same thigh. These are chiefly to be observed, because the oblique fibers of the vaffe muscles thereon take their original.

Besides, this bone hath two appendices in the ends thereof, as easily appears in a child's thigh; the upper appendix, makes the round head of the thigh itself, which (as every other appendix) feated upon a long necke, is received in the cavitie of the hanch-bone by Enarthrosis; it is flaxed and fastened there by two forts of ligaments, of which the one is common, proceeding from the muscles, which descend from above, about the necke thereof; the other is proper, that is, one membraneous and broad, proceeding from the whole cavity of the orb, or cuppe, defending about all the head of the thigh, above the necke thereof; the other thicker and round, defending from the second cavity of the *Coxal* it selfe, which is extended, even to the common hole at the top of the head thereof.

Besides, under this head, that bone hath two processes, the one great and thick, the other little and short.

The greater seate in the hinde part, is called the great *Trochanter*; the leffer seate in the inner part, is named the little *Trochanter*.

But you must note, that the great *Trochanter*, on the higher and hinde part thereof, which looks towards the head of this bone, makes a certaine *sinuis* or bone, into which the twin muscles and others, whereof we shall hereafter speake, are implanted; we must also consider the multitude of holes encompassing this necke, betweene the head and the two *Trochanters*, which yeeld a passage to the vessels, that is, the veins, arteries, and nerves, into the marrow of the bone itselfe, whence the marrow it selfe becomes partaker of sense, especially on that part which is covered with a coate, and the bone lives and is nourished.

The other Appendix of the thigh, that is, the lower, is the greatest and thickest, rising, as it were with two heads, which are deceased by two cavities, the one superficiarie and on the fore side, whereby it receives the whole-bone of the knee; the other deeper, and on the backe part, by which it receives the gristles and as it were bony ligaments, proceeding from the eminencie which is seene betwixt the two cavities of the upper appendix of the bone of the legge, which *Hippocrates*, *libi de fructuris*, calls in his tongue *Disphys.*

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**Chap. XXXV.**

**Of the muscles moving the thigh.**

He muscles of the thigh are just fourteene in number, that is, two *Tendiniae*, bend it, wherein they are called *Flavores*, or benders; three extend it, wherein they are called *Tenors*, extenders; three move it inwards, driving the knee outwards, and drawing the heel inwards, as when wee croffe our legges; yet some make these three one, and call it the *Triceps*, or thriceheaded muscle. Sixe spread it abroad, and dilate it, as happens in the act of venery.
The two flexores.

Four of these are called *Gemini* or Twins, by reason of the similitude of their thickneffe, original innervation and action; the two other are called *Obturatores*, because they stop the hole which is common to the thirre and backe-bones.

Now one of the two *Flexores*, being round, descends on the inside with fibers of an unequall length from all the transverse processes of the loines, above the hindle commiuffure of the hanch and thirre-bones, and is inserted into the little *Trochanter*; the other broader and larger from the original *paftes* forth of the whole lippe, and inner brow of the hanch-bone, and filling the inner cavity thereof, is inserted above the fore part of the head of the thigh, into the little *Trochanter* by a thicke tendon, which it with the follow muscle lately described, produces, even from the flefhy part thereof, wherefore you neede to take no great paines in drawing, or plucking them away.

The three *Tenfiores* or extenders, make the buttocks, of which the first being the thicker, larger, and externall, arising from the rumpe, the holy-bone, and more than half of the exterior and hinder lippe of the hanch-bone, is inferred by oblique fibers, some foure fingers breadth from the great *Trochanter* at the right line, which we said, resembled an Afles backe.

The second, which is the middle in bigndTe and ftreight, descends from the rest of the lippe, and from the fore and outward ribbe of the hanch-bone, and above the midft of the bone, is inferred into the upper part of the great *Trochanter* by a triangular infertion above the upper and exterior part thereof.

The third being leffer, shorter and thinner, lying hidde under these former, proceeds from the middle of the externall surface of the hanch-bone, and then is inferred into the greater part of the right line of the great *Trochanter*.

These three muscles have a great andlarge original, but a narrow infertion, as it were by oblique fibers.

Then follow those three muscles which move the thighs inwards, straiten and croffe them, so that the knee stands forwards or outwards, but the heele is drawne inwards, as you may understand by their infertion, although some thinke otherwife. But the three muscles by their original, partly flefhy, and partly membranous, arise from the upper and for part of the circumference of the thirre-bone, and thence are inferred into the hindle line of the huckle-bone, some higher than otherfoone; for the leffer and shorter stays at the roots of the little *Trocchanter*, the middle descends a little deeper, the 3. with the longest of his fibers, descends even to the midft of the line.

This if it be fo, that is, these muscles proceeding from the fore and upper part, to be inferred into the hinder line of the huckle-bone, whilst they alone performe their action, and draw the thighs together, they will turne them outwards, juft fo as when we put them acroffe, but they will not draw one heele to another, and put the heele outwards, for such like motion is performed by the inner V aftc muscle of the thigh, moving the legge. Now follow the fie which move the buttocks.

The first, and higher of the *Quadrigemini*, or the foure twin muscles, passes forth of the commiuffure of the holy-bone, with the bone of the rumpe, or rather from the lowest extreme of the holy-bone, and thence it is inferred into the cavity of the great *Trocchanter* by a tendon of a sufficient largeness.

The second proceeding from the hollow part or fifliirf, which is betvveeen the extremity of the huckle-bone, and the tuberous, or swelling out of the same, is inferred in like manner into the cavity of the great *Trocchanter*.

The third, ascends from the inner part of the swelling out of the huckle-bone, a littleabove, betweene the two *Trocchanters*, into the cavity of the greater of them.

The fourth, and laft, the lowest and broadeft of them all proceeds from all the exterior protuberance of the huckle-bone, and thence is inferred into the great *Trocchanter*, and these foure muscles lie hid under the thicke and more eminent part of the buttocks, wherefore that you may the better shew them, they must be turned up towards their original.

The two *Obturatores* remaine to be spoken of, that is, the internall and externall, both which arise from the circuit and circumference of the hole which they stoppe, which as wee fays is common to the thirre and huckle-bone,
Lib. 6

and other extreme parts of the Body.

bone, but the internall ascends to the exterior root of the great Trochusater by the middle suture betweene the upper part of the protuberancy of the huckle-bone, and the spine which stand up in the hinder basis of the hund-bone.

But the externall proceeds from the exterior cavity, and the middle space betweene the tuberosity of the huckle-bone and cavity thereof, and is inferred in the lower part into the cavity of the great Trochusater, together with the Quadrige-

mini.

If you would plainly see the exterior Obturator, you must either cut off the begining of the three-headed muscle, or handomely pluck it away, and then extend it, and turn it up; The internall is easilie discerned when the bladder is taken away.

**Chap. XXXVI.**

Of the bones of the Legge, or Shanke.

Hole which would describe the muscules of the legge, ought first to de-
scribe the bones thereof, beginning at the Kotesali, or whistle-bone of the

knee.

This bone is griffily on the outide, and round in compass, but on the inner and middle part after some fort gibbous, but somewhat flattened at the sides, that so it may be flifer applied to the joyn of the knee, and fitted within the interior cavity of the two appendices of the thigh, and the upper and foremost of the legge.

The use thereof is to strengthen the joyn of the knee, and to hold the legge to his due extent, so that it may not be bended so farre forwards, as it is back-wards.

The bones of the legge are two, the one thicker, called by the particullar and pro-
per name, the Thibal or legge-bone; the other which is letfer, is termed Perone, or Tibula, but commonly the letfer faille, ( and in English it may be termed the flain-
bone.) The thicker being hollow and marrowie, is seated in the inner part of the leg, having two processses, the one bigger, the other leffe.

The bigger seated on the upper part of the bone, and conjoined to it by Symphyses, makes two superfciall and side cavities dijoinied by an indifferent rising; where¬fore this bone is connext to the bone of the thigh by Ginglymos. For in the cavities thereof it receives the lower and hinder protuberances of the Appendices of the thigh-

bone, but the middle eminence thereof, is received by it betweene the two protuberances thereof. This joyn is strengthened, not onely by the force of the tendons, or muscules en¬
ding there, but alfo of three strong ligaments, of which one proceeds from all the externall, another from all the internall part of that connexion; the third which we, out of Hippocrates, called Diasphyses, from the distance or space betweene them, The other processse of the legge-bone, which we called the leffe, seated in the lower part thereof, makes as it were a double cavite, whereby it receives the Aftragalus or Patellre bone; but on the inside it makes the anfle, as the Perone makes it without betweene these ancles the Aftragalus is received on the sides, and turned as the nut in a Croffe-bow, as often as there is neede to bend or extend the foote. Besides this same legg-bone, being triangula hath three eminencies made in the shape of an Aftre back, the sharper descends alongt the fore part, called by the Greekes Anticenmion, the secong refides on the inner part, and the third on the outer; all these must be diligently obsever, and chiefly, that on the fore part, because it is as a guide and rule to a Chirurgion in the well setting of a broken legge. The Perone, or thine-bone, is feated, as it were, on the outide, and as behinde the legge-bone; it hath alfo two appendices hollow on the inside, but gibbous on the out. This bone by the upper of these is ofttened and inferred under the inner, and in some fort the hinder appende of the legge-bone, so that it is in no fort articulated with the thigh, but ferves
Of the Muscles and Bones,

Of the Muscles of the Legges.

All the motions of the legge are performed by eleven muscles, of which there be six on the forefide, and five on the hinder. But of these, some move the legge only, as those which take their originall from the bone of the thigh; others truly move the legge, but with the thigh, as those which arise above the thigh, that is, from the hanche, huckle, and thare-bones.

The first of these on the forefide, called the Long, but commonly the satorius (or Tailor-muscule by reason of its action) it arises from the lower and fore extremity of the spine or appendix of the hanch-bone, and descending obliquely above the other muscles, is inserted by a large and membranous tendon, into the fore and inner part of the legge under the knee; the action thereof is to crosse the legges, but being first bended by the muceles prefently to be treated of, it helps also the three headed muceles in the performance of the forementioned action.

The second of these fore mueseles is termed the membrautos, or membranous, because it is wholly such, unless at the originall where it descends swiftly from the roots and bafis of the above mentioned spine of the hanch-bone, and that obliquely with its membranous and broad tendon (mixed with the common coat of the mueseles) into the outward part of the legge, which it moves outwards, as also the thigh with the foure twin mueseles; for as we have in another place observed, of two oblique motions, concurring in one, is made a right motion; and besides, almost all the motions of the body, are thus performed; the mueseles which perform such motions are placed and oppofed in an oblique fite, as may be perceived by the motions and fite of the mueseles of the hand taken in general.

The third, called the Rectus, or right (because it descends above the crureus, along the right fore line of the thigh, between the two Vaiffe mueseles) comes forth between the extremity of the appendix of the hanch-bone and cavity thereof, with a very strong ligament, and then is inserted into the fore part of the legge, passing over the midift of the whirlc-bone of the knee; it extends the legge, with the three following, but by accident it may help the bending of the thigh.

The fourth and fifth are called Pailli, Vaiffe or huge mueseles, by reason of their largeness; the one of these is internall, the other externall: they both arise with right fibers, from their originall, but with oblique at their infertion, by reason whereof they both feme to have a compound action from a right and oblique motion; the right helping for the extension of the legge, but the oblique to draw one knee to another, or to defoyne both the knees; the internall comes by its right fibers from the root of the little Trochanter, but by its oblique from the inner defendent line of the thigh. The externall passes forth by its right fibers from the root of the great Trochanter, but by the oblique from the externall defendent line of the same bone. But all these fibers are in certaine places so mixed with the crureus that they cannot be separated unleffe you violate the one of them; they goe into the legge (each on his fide) above the whirlc-bone of the knee along the fides of the right muceles, with which it makes an unfeparable tendon, as you shall prefently heare.

The crureus, or Thigh-muscule,
(by reason of the strait and firme adhesion, which it hath with the thigh-bone, which is by some called Crus) from the space between the two Trochanters descends under the right musle, and two vaste muscles into the fore part of the thigh, even to the whirl-bone of the knee. But we must note that these foure last muscles make a common thick and broad tendon with which they cover the Patella, or whirl-bone, and all the fore cartilagin of the knee, that they cannot be separated without tearing, wherefore we must thinke that this tendon, serves the knee for a ligament, now all these musles performing their action together, extend the legge. The five hind muscles follow to be spoken of, of which three arise from the tuberofite of the whirl-bone, going into the inner part; the fourth from the middle of the Pubis, called Biceps, that is, the two headed muscle into the outside of the legge. Of the internall, one passing from the forementioned tuberofite, descending even into the midst of the thigh, and then becoming fleshly, is inserted by its tendon, after the manner we formerly mentioned.

The other being slender, passing forth also from the same place, with its tendon, is inserted with the tendon of the long muscle, and is inserted with a round tendon, into the inner part of the legge after the manner of the fore-mentioned.

The third, being the inner, or hinder, descends from the middle part of the thighbone, with a broad and slender ligament, and is inserted with a round tendon, into the inner part of the legge after the manner of the fore-mentioned.

The fourth called Biceps takes one of the two heads, of which it consists, from the middle mentioned tuberofite; the other from the outer line of the thigh, but is inserted into the externall part of the legge, as we formerly said.

The fifth and last called the Popliteus descends obliquely fleshly from the externall condyle or knot of the thigh, into the inner and hinder part of the legge, at the joining thereof to the shinne-bone; the action thereof is, to draw the legge, after a manner inwards.

Chap. XXXVIII.

Of the Bones of the Foote.

The Order of Anatomy requires, that we now proscrute the muscles moving the foote; but because we should in vain deliver their insertion, the disposition and condition of the bones of the foote, not being first known, wherefore it first behoves us, to set forth their description. Therefore the bones of the foote are fixe and twenty in number, distinguished into three ranks, that is, the bones of the Tarso or Instep, are seven; these of the Pedale, the afterwell, or backe of the foote, five, and those of the toes fourteen. Of the seven bones of the instep, there are 4 named, and 3 unnamed. The first of the named immediately following the bones of the legge, is called Talus, or the bone of the heel; this hath three connexions, one, as we said before, in the upper and broader part with the bones of the legge, of which it is received; the other in the lower and hinder part, by which it receives the upper and inner proceede of the bone of the heele, the third in the foreside by which it is received in the cavite of the Os naviculare or Scaphoides, that is, the bone-like-bone. By the first connexion the foote is extended and bendit; by the seconde it is moved with the heele to the fide; the two first connexions are by Diastrophes, the laft by Synarthrosi. But it is strengthened by strong and broad ligaments, defending, and ascending from one bone into another; also they are strengthened by membranes, muscles and tendons, defending to the foote, above and under these joints. But this bone hath 3 proceedes, as 3 feet, fastened to the bone of the heele; of which the left and left is under the outer anckle, the biggest (which Galen faith, makes a round head, fastened on a long necke) looks towards the fore part of the foote, over against the great toe; and the next toe to it; the middelmost is at the heele, behind the legge-bone.

The bones of the instep.
The Tarse, or fore-headed musle.
The Biceps, or hind muscle.
The Popliteus, or ham muscle.

Their number
1. the bone of the instep.
2. the Afragala, or three connexions, and their side.
3. in three parts, in the.

The Afragala, or three connexions, and their side.
I pass over in silence many other things, as the fmoothneffe and asperity or roughneffe of the bone, which I had rather you should learn by outward inspection, than by book. The second bone lying under this is called the Calcanem, or heel-bone, being the biggest of all the bones of the foot, upon which all the body relies when we go. It hath two upper processæ, the one great, the other little. The great is received in the hinde and outer process of the Astra-galus; the leffer is received on the infaide in the 2. process of the same bone, which we said had a round head fastened to a long neck. Besides, it is round on the hinde part, and much diftorted from the legge-bone, but on the fore and longer part, it is knit by Synarthrosis to the Die-bone, whose lower and inner part, it seemes to receive; the superficies thereof is wholly unequall, and rising up with many swellings. On the inner side it makes it as it were a channel, fto give way, as well to the veffels as tendons going to the tole of the forefeet and toes, Lastly, we must consider the holes by which the veffels passe into that bone to give it nourishment; by reason of which veffels the fracture of this heel-bone, is very dangerous, because of the preffing and confrufion of the veffels, as Hippocrates fhews.

The ligaments of this hecle, or heel-bone they are fuch, as these of the Astragalus, to wit, tendons, membranes and ligaments properly fo called, comming from one bone to another. The third bone of the foote is named Scaphoïdes or boate-like, from the refemblance it hath to a boate, for on that part which lookes towards the posterne of the foot, it is hollow; but on that part which is next the three imminentia, or nameleffe bones, (which it fuffaines, and of which it is received, as in the cavity thereof receives the head of the Astra-galus, it is gibbous like the bottome of a boate.

The connections thereof are by Synarthrosis, and they are strengthened by the forementioned ligaments; this fame bone is achted on the upper part, but somewhat hollowed or flatted below, or the inner part ends in a point, like the prow of a fhip, but the outer obfute like the ftern of a fhippe. The fourth bone of thefe which have names, is called the Cubodes, from the refemblance of a Die, although that familitude be very obscure. On the fore part it fuffaines the toes; which by a certaine proportion to the fingers of the hand, may be called the Ring and little toes, but it is fuffained on the hinde part, with the backe part of the hecle; on the inner fide it is joyned with the boate-like bone, and that nameleffe bone which fuffaines the middle toe, on the outide, it produces a rifing like the backe of an Affe, which on the lower part is extended tranfverfly all the length thereof, at the two fides of this eminency or rифing, there are two small cavities, in the forme of a channel. The firt and the greater of the offa imminentia, or nameleffe bones, fuffaines the great toe; the leffer and fcond, the next toe thereto; the third and middle in biggneffe, the middle toe. These three bones are achted on their upper part, but somewhat hollowed below. They are knit to the three forementioned bones by Synarthrosis, of which they are received, but on the hinde part with the boate-like bone which they receive. Now we must come to the bones of the fcond râmke, that is, of the Pedium, or backe of the foote; there are five in number, bearing up the five bone of the toes. They are somewhat gibbous on their upper part, but hollow below, each of them hath two processæ at the end thereof, by the lower and firt of which they receive the three nameleffe and Die-bone, bur by the upper made into a round head, they are received of the three bones of the toes. Their connections, whether with the toes, or bones of the instep, are by Synarthrosis. The ligaments as well proper as common are fuch, as we faid of the former. The bones of the third order now remaine to be spoken of; which were faid, make the toes, and they are foureneene, two of the great toe, but three of each of the other fites. The firft is somewhat longifie, but the reft are very short, except that of the great toe, all of them on the upper fide are round and convex, but on the lower somewhat hollow, and plaine longe wilde, that the tendons which bend them, may passe more strightely and fafely without inclining to either fide, even to their furtheft joynts; although fuch paffages are much helped by the membraneous and common ligament, which rising from the fides of thefe bones, involves thefe tendons, as we mentioned in the fingers. To conclude, each of these bones the laft excepted, have a double connexion by Diarthrosis, they are all unequall in their bignes; that is, thicke at their beginning (where they receive the heads of the precedente bones,
Contained in the Head.

The Figure of the bones of the Foot properly so called.

Fig. 1, 2, 4, 5, 6, shew the upper, lower, inner and outer sides of the Talus or Pastern.

Fig. 7, 8, 9, shew the same sides of the Heel.

Fig. 10, and 11, shew the forward and backward side of the boste bone.

Fig. 12, and 13, shew the sole and back part of the wreath made of forty bones.

ABCD 3, 5, 6. The protuberation of the Talus joyned to the appendix of the leg bone, and of this protuberation four sides.

EE, 3, A sinus inculpd in the protuberation of the Talus.

FF, 3, two bunching parts of the Talus.

G, 3, the inner side of the protuberation of the Talus crufted ovcf with a grifile, joyned to the inner ankle.

H, 6, The outward sinus of the protuberation of the Talus covered over with a grifile, and receiving the inner ankle.

I, 5, A rough sinus of the Talus, receiving a grifily ligament from the inner ankle.

K, 6, a sinus of the Talus receiving a grifily ligament from the outward ankle.

LM, 5, 6, two sinus in the hinder part of the Talus.

N, 3, 4, 5, 6, the necke of the Talus or pattern bone.

O, 4, 5, 6, the head of the Talus going under the sinus of the boste bone.

P, 7, 8, 9, the head of the bone of the heele crufted over with a grifile, and going under the sinus of the Talus or the pattern bone.

Q, 4, a large sinus of the Talus receiving the head of the heele.

R, 7, 8, 9, a sinus of the heele whereeto the lower part of the head of the Talus is joyned.

S, 4, the lower part of the head of the Talus going into the sinus of the heele.

T, 4, a harpe sinus of the heele receiving a grifily ligament from the pattern bone.

XY, Z, 2, the place of the heele.

Y, 2, Y, 8, 7, 9, a procefl of the heele made for the production of muscles.
The Seed-bones of the foot:

- The Ligaments by which their connexions are fastened, are such as the former.
- The Osseous are Seed-bones of the feet are like in number and sitse to those of the hands. But this is to be noted, that these Seed-bones which are in the first articulation are somewhat bigger than the rest, and they are round and longish on the one side, but smooth and hollow on the other, between these two cavities, encompassed by three rifsings, of which two are on the sides, and the third in the midst of the extremity of the first bone of the Pedus, which chiefly beares up the great toe. To conclude, before we come to speake of the muscles, we must observe that the foote was made for two commodities. The first is to stye and beare the whole body when we stond, for which cause nature set not the great toe contrary to the other, as it placed the Thumbe on the hand. The other is for apprehension, or taking hold of, wherofe nature framed and made the foote and those moveable and jointed in the toes, as in the fingers of the hand. Besides also for that we must goe upon our feet, Nature hath made them in some places hollow on the lower side, & in other some plain in a triangular figure, that so our feet may carry us over every foile, plane mountaneus, equall and unequall, through all parts of the world.

Chap.
He muscles of the Legge moving the foote, are absolutely nine, three in the fore part and fixe in the hind. Two of the three fore muscles bend the foote, when they joyntly perform their action, but when severally, each draws it to his side; the third chiefly extends the Toes, for other whilsts it siccemes by its flenderer and longer Tendon (which exceeds not that bone of the Pedium which sustains the little Toe) to help also to bend the foote.

The first is called Peronous, because it descends along the bone Perone; the other the Tibias anticus, for that it descends along the Os Tibia, or bone of the Legge. The third from its action is called the Digiunmtenor, or Toe-stretcher. For their original the Peronous which seems to have two heads, descends from the upper appendix of the Perone or shin bone by its first head, but by the other from the middle of the same bone, from the fore side into the hind, as the superficies nerves which passes between the fore and outward line of the said bone; but after it arrives at the lower and hinder appendix of the same bone, behind the outer Ankle it produces two tendons, which by the guidance of the Ligaments as well proper, as common, goe, the thicker under the sole of the foote, ending in the Die-bone and that bone of the Pedium which sustains the great Toe; the lefser goes on the outside to the Die-bone, & the left & left bone of the Pedium which bears up the little Toe, sometimes a slender portion thereof is produced even to the side of the little Toe, extending it and drawing it from the reft. The Tibias anticus or Fore legge muscle proceed- ing from the upper and outer appendix of the Leg bone descends above the surface of the same bone, which is between the fore and outer line to which it adheres, as also to that surface even to the midd, from which place it produces one tendon, which descending on the fore and lowest part, ends on the outside into two of the nameles bones, that is, into the first which is the thicker, and into the middle-moff, but besides by a slender portion thereof it is extended into the first and greater bone of the Pedium, to extend the great Toe, drawing it inwards to the other foote. And this muscle with the precedent bends the foote, if they both perform their parts at once; but severally, each draws the foote towards his side. The third which is the Digiunmtenor, or Toe-stretcher, is two fold; the one takes its original from the top of the Legge, and running along the shin-bone and passing under the ring, carries it into the foote, in which it ends by five tendons going to all the joynts of the Toes, and by a fixth at that bone of the Pedium which sustains the little Toe, whereby (as wee formerly faid) it helps the bending of the foote. The other descends into the middd of the shin-bone, and somehowe fastens thereto by one tendon paffing under the Ring it goes to the great Toe. But you must note that all these Tendons have nervous, ligamentous and flexy fibers so separated from each other, that they can equally alone performe their function, as if they were more distinct muscles. And we must think the fame of the rest which have distinct Tendons presently from their flechy part.

The fixe hind muclees follow, of which the two first are called the Gemelli or Twins by reason of the similitude of their thicknese, original, insertion and action. The third is called the Plantor, because it is pient upon the sole of the foot, as the Palmaris upon the palme of the hand. The fourth is termed the Soleus or sole muscle by reason of the resemblance it hath to the fifth of that name. The fifth the Tibias posticus or hindlegge Muscle which descends along the backe part of the leg-bone. The fixth and laft the Digiunmtenor or Toe-bender, equivalent to the Deepe muscle of the hand, some make but one muscle of this and the Tibias posticus, which produces three tendons; others had rather make three, as thus, that one should be the Tibias, the other the bender of foure Toes, the third the bender of the great Toe.

Now for the two Gemelli or Twins, the one is internall, the other externall; the internall passes forth from the roots of the inner Condyle of the Thigh, but the externall...
Of the Muscles and Bones,

In what place the Heels bleed
The Tendons, their two-fold.

Their thinner external from the external Condyle; and from this their original presently becoming flethy, especially on the outer side, they meet together a little after in their flethy parts, and with the soleus they make the thickest and great Tendon at the middle of the Legge, which from thence is inserted into the backside part of the Heel, in this very Tendon breed painful kites. The action thereof is, to help our going by putting forth the foot, whilst it draws the Heel towards its original.

The Plantaris the least and slenderest of them all, pales forth flethy from the outward head of the legge-bone, and from thence the space of four fingers breadth it ends in a strong and flender Tendon, which it sends between the Twin and soleus to the sole of the foot, there to produce a membrane which covers the sole of the foot; and a muscle equivalent to the upper bender of the Hand.

The Soleus, or sole muscle the thickest of them all, and feated under the Twin muscles descends from the commissure of the legge and shin-bones, and about the midst of the legge, after it hath mixed his tendon with that of the Twin muscles, it runs into the forefaid place that it may extend the foot for the forefaid use.

The Tibialis posterior descends from the hinder appendix of the legge and shin-bones, and adhering, to them almost as far as they goe, by a strong Tendon, being as it were bony at the end thereof, it is inserted into the Boat-like bone and the two first nameles bones to help the oblique extension of the foot.

The last being the Digitusflexor or Toe-bender is twofold, for one ariseth from the legge-bone, in that place where the Popliteus ends, and inserted into that same bone it goes even to the backside of the inner ankle & from thence into the joints of some of the toes. The other draws his originall from almost the middle of the shin-bone, and somewhat inserted into it; it goes by the heel and paternone bone to the great toe, mixed with the precedent; their action is to bend the first joint of the Toes, after by the force of the common Ligament, but it is their action to bend the last dearticulation of the Toes by their proper insertion.

Chap. XL.

Of the Muscles moving the Toes of the foot.

Ow follow the muscles moving the Toes; these are eight in number, one on the upper, and seven on the lower side. The first proceeds from the Pataterne, heel and Those bones below the external Ankle, or the Ligament of these bones with the Legge-bone, and obliquely stretched to the top of the foot is parted into five small tendons to the sides of the five toes, to draw them outwards towards its original, whereupon it is called the Abdutor of the Toes, and also Pedius, because it is stretched over the Pedium, or backe of the foot.

The first of the seven of the lower side called the flexor superficialior or upper bender, ariseth from the heele and stretched alongst the foote under the strong membrane, (which from the heele is straitly fastened to the extremity of the bones of the Pedium to strengthen the parts contained under it) is inserted by four Tendons, at the second joints of the fore Toes which it bendes. Here you must note that near the insertion thereof, this muscle divides it selfe, like that muscle of the hand which is called sublimus, that so it may give way to the Deepe, which (as we said) descends alongst the fingers, to which a certaine common membranous Ligament adjoyes it selfe, which involues and fastens it to the bone all alongst the lower part of the fingers, even to the last dearticulation.

The second equivalent to that muscle of the hand which is called Thener, seated on the inner side of the foote, ariseth from the inner and hollow part of the heel and paternone bones and ends in the side, and inner part of the great Toe, which it draws from the reff, inwards. This may be divided into two or three muscles, as the Thener of the hand, to draw the great Toe to the reff, as much as need requires, just as we said of the hand. The third answerable to that of the hand which is named the Hypo-thener, pales from the outer part of the heel and ascending by the sides of the foote is in like manner inserted into the side of the little Toe, so to draw it from the reff,
to which same action a certaine flesh contained under the sole of the foote may serve, which is stretched even to these Toes, that also it may serve to hollow the foote. The foure Lumbories or wormy muscles follow next, which from the membrane of the Deep Toe-bender are inferted into the inner & side part of the foure Toes, so to draw them inwards, by a motion contrary to that which is performed by the Pediater. The Interosse or bone-bound muscles of the Pedium or back of the foot, remaine to be spoken of. These are eight in number, foure above, and as many below, different in their original, infertion and action, for the upper because they draw the foote outwards with the pedifas, artife from the fore and inner part of that bone of the pedium, which bears up the little Toe (and so also the rest each in its order) and are inferted into the outward & forepart of the following bone. The lower on the contrary passe from the fore and outer part of that bone of the pedium, which bears up the Great Toe (and so each of the rest in its order,) but are inferted into the inner and upper part of the following bone, so with the wormy muscles to draw it inwards, or to hollow the foote as the outwards, or to flat the foote, as we said of the Interosse of the hand.

Chap. XLI.

An Epitome or briefe recital of the bones in a mans body.

The whole head which hath the least consist of 60 bones, but that which hath most of 93, that is 93 of the Cranium or skull, 14 or 17 of the face, and 31 teeth. Of the bones of the skull there be 8 containing and five contained; the

This first setteth the forepart of the Sceleton of a man, &c.

The Declaration of these three figures put into one.

A. 3. The Coronall Suture called in Greeces ἡμισφαίρια.

B. 2, 3. The future like the letter A called Αυξανόν.

C. 2. The fagittal Suture called συγκεκριμένον.

D 2, 3. The scale-like Conjuncion called νεπερίζων.

a. 2, 3, Os verticis, or Συνέχων, the bone of the Syncephata, called Os trigonum.

b, 2, 3. The forehead-bone, that is, περιτοιχία.

γ. 2, 3. The bone of the Nowle or τρισ.

δ. 2, 3. The bones of the temples or τρισ.

ε. 3. An appendix in the temple-bone like a Bulfin, νεπερις.

ζ. 2, 3. A proceffe in the temple-bone like the estate of a dunghe, called therefore ΜαμίλλαΣ ήγαμαδέων.

Ε. 2, 3. The wedge-bone, ορθοδύναμος.

θ. 3, the inner part of the Scull.

ι. 3. A proceffe of the wedge-bone much like the wing of a Bat, and therefore called ομοσυντείχων.

F, I,
The 2 and 3 Figures sheweth the backside of the Skeleton, and the laterall part of the Skeleton.

F, 1, 2, 3, the yoke-bone, G 1, 3, the lower jaw, I, K, L, M, N, 1, 2, 3, the backe or the spine, 1, 2, 3, From I to K, the Neck, 1, 2, 3, From K to L, the Rakebones of the Cheft, From L to M, the rakebones of the Loynes. From M to N, the Holy-bone, O, I, 3, the Rumpe-bone, 1, 2, 3, the brest-bone, P, 1, 3, the Sword-like gristle of the brest, 1, 2, 3, From I to K, the Neck-bone, Q, 1, the clavicles or colleter bones, R, 1, 2, 3, the shoulder-blade, S, 1, 2, 3, the upper procefe of the shoulder-blade, or the top of the shoulder, called 1, 2, 3, the lower procefe of the Shoulder-blade, called 1, 2, 3, the brest-bone, called Humerus and 1, 2, 3, the Cubit, X, 1, 2, 3, the wand or the upper bone of the Cubit, called 1, 2, 3, the ell or lower bone of the Cubit, called 1, 2, 3, the procefe of the Cubit, called 1, 2, 3, the procefe like a bodkin or probe, called 1, 2, 3, the wrest, 1, 2, 3, the after-wrest, 1, 2, 3, the fingers, 1, 2, 3, the bones joyned to the fides of the Holy bone, on each fide, diſtinguifhed as it were into three parts, 1, 2, 3, the firft part called the Hanch-bone, Os ilium, 1, 2, 3, the fecond part the bone of the Caxendix, 1, 2, 3, the third part the fhare-bone, Os pubis, 1, 2, 3, a grifle going betwene the conjunction of the fhare-bones, 1, 2, 3, the thigh, 1, 2, 3, the greater outward procefe of the thigh called 1, 2, 3, his letter
**L.18.6.**

**Contained in a mans Body.**

leffer and inner procffe. n. 1, 3, 3, the whiblebone of the kneene, Patella Rotunda, termed 2, 1, 3, 3, the leg, tibia, & 1, 2, 3, the inner & greater bone of the leg, Medulloua internus, 1, 2, 3, the utter and smaller bone of the leg, called the Bractbone, tibia, & 1, 2, 3, the procffe of the Leg or the inner ankle called Medullous internus, X, 1, 3, the procffe of the brace of the out-ward ankle, both of them are called in greeke, 2, 1, 3, 3, the bone called the cockal, Talus, & 4, 1, 2, 3, the Heele Calce, & 1, 2, 3, the bone called Os Naviculare, & 1, 2, 3, 3, the wreft of the foot called Varus, con-fitting of foure bones, 2, 1, 2, 3, three inner bones of the wreft of the foot, called 2, 1, 2, 3, 3, the utter bone of the wreft of the foot like a Dye, 2, 1, 2, 3, the afterwreft of the foote called 2, 1, 2, 3, 3, the toes of the foote, 2, 1, 2, 3, the feed bones of the foote, called Os Sphenoidale, & 2, 1, 2, 3, 3, the anterior commifure or con-junction of the share-bones filled up with a thicke gristle, that in the birth they might better yeeld somewhat for Natures necessity.

This figure sheweth the Skeleton of the bones & gristles of a woman, that it may appeare all her bones are in proportion leffer than the bones of a man. But in this figure onely those parts are marked with letters wherein a woman differeth from a man in her bones and gristles.

A, The sagittal future descending into the nofe, & dividing the fore head bone, which is sometimes found in women, very rarely in men, but always in Infants.

BB, the Cheef somewhat depreffed before, because of the Paps.

CC, the coller bones not so much crooked as in men, nor intorted so much upward.

D, the breft-bone perforated sometimes with a hole much like the forme of a heart, through which veins do run outward, from the mammary veins unto the paps.

E, the gristles of the ribs, which in women are somewhat bony, because of the weight of the Dugs.

F, a part of the backe reflected, or bent backward above the loynes.

GG, the compaffe of the hanch-bones running more outward, for the wombe to reft upon, when a woman is with child.

HH, the lower procffe of the share-bones, bearing outward that the cavity marked with K, might be the larger.

I, the anterior commifure or conjunction of the share-bones filled up with a thicke gristle, that in the birth they might better yeeld somewhat for Natures necessity.

K, A great and large cavity circumscribed by the bones of the coxendix and the Holy-bone, L, The Rump or Coccyx, curvéd backward to give way in the time of the birth. M, the thigh bones by reafon of the largeneft of the forefaid cavity, have a greater distance between them above, whence also it is that womens thighes are thicker than mens.
Of the Muscles and Bones.

containing are, the Os fronsis, or Forehead bone, the Nowle-bone, the two bones of the Synphysis, the two spongy bones, the Wedgebone, and the Sive-like or spongy-bone. But the contained are five flit up in the cavity of the Eares, the Anvile, Hammer and Shutterstock.

For the bones of the face, there are six within or about the Orb of the Eye, that is, on each side: three, two bones of the Nofe, two teffer lew bones, and two bigger, which are always in beasts scene disguifed by a manifest difference, but it is fo rare in men, that I have not found it as yet; therefore these only are disguifed by manifest difference, two which contain one the upper teeth, the two inner of the palate, the two of the lower law in children. And all of all the Os Crifis, whence the middle griffle or partition of the nofe arife.

The two and thirty teeth are equally distributed in the upper and lower Iawes, and of these there be eight teethers, four fanges, or Dog-teeth, and twenty Grinders.

And there is another bone at the root of the tongue called Os Hyoidez, always composd of three bones, fometime of foure.

Now follow the bones of the Spine, or Back-bone, which are juft fquare and triy, that is, feven of the necke, twelve of the Chiefe, five of the loines, five of the holy-bone, and foure of the rumpe. Besides there are two bones of the throat, or Coller bones.

The Ribbes are twenty foure, that is, fourecene true and ten baffard ribs. The bones of the Sterno or Breath-bone most frequently three, other whiltes feven, as sometimes in young bodyes.

Hence comming to the Armes there are reckoned 62, beginning with the shoulder-blade, as there are two shoulder-blades; two Arme bones, foure bones of the Cubite, that is, two Ell-bones and two Wands, fifteen of the Wreft, eight of the Afterwreft, and thirty of the fingers, into this number also come the Sefanoides, or feedbones, of which fome are internall, & fome are always twelve at the leaft, although fomtimes there may be more found, a great part of which rather merit the name of Griffles, than bones; there are others externall if we beleue Sefoines.

Now remaine the bones of the Leg, which (if we reckon the Ofe /ium on each side three) as in young bodyes, it is fit they should be fixy fix, besides the feed-bones, that is to say, two Huncb bones, two fquare bones, two Huckle-bones, two thigh-bones, two WirtH bones of the knees, foure of the leg, that is two leg-bones, and two thin-Bones. Fourteen of the Infeet, as twelve, two paterne, two boat-like, two Die, & fix nameffe bones. Ten of the Pedium or back of the foote, that is, five in each foot, & twenty eight of the Toes: & as many feed-bones in the feet, as the hands enjoy. But I have thought good to adde these figures for the better understanding of what hath beene spoken hereof.

Of the Muscles and Bones.

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CHAP. XLI.

An Epitome of the names and kinds of composure of the bones.

When the Sceletos is.

The bones are compos'd two manner of ways,

2 Sorts of Articulation.

What Doos chlofis and Symphefis are.

3 Sorts of Disarticulation.

What Remains it.

What is necessarie for a Chirurgion to know the manner of setting & repairing broken bones, as to put them in their places when they are di-located, or out of joynt; but seeing neither of them can be understood when the natural connexion of the bones is not knowne, I have thought it a work (worth my labour, briefely to let downe, by what and how many means the bones are mutually knit and fastened together. The universall composure and structure of all the bones in a mans body is called, by the Greeks, Sceletos. But all these bones are compos'd after two forts, that is, by Articulotion, an Articulation or joynt, and by Symbfis, or Coarticulation, which differ as thus. Articulation is a composition of the bones with a manifest and visible motion; Coarticulation hath a motion of the bones, yet not to manifest, but more obfcur. But these two do again admit a subdivision into other kinds. For Symbfis consists under it Entartitures, Artrodes & Ginglymos. Now Entartitures or Inarticulation is a kind of Dearthiculation, in which a deep Cavity
Cavity receives a thick and long head, such a composition hath the Thigh-bone with the Huckle-bone.

Artrodias is when a lightly engraven cavity admits a small and short head, such a connexion is that of the Arme-bone with the shoulder-blade; of the first Vexillonium with the second. The Greeks have distinguished by proper names these two kinds of Cavities and heads; For they call the thick and long head Cephalic, that is, a Head absolutely; but the lesser they term Coronal, or Coronia, which the Latins call Capitulum, a Little-head. But they call a deepe Cavity Cotyle, and a supernumerary one Glea. The third sort called Ginglymus, is when the bones mutually receive and are received one of another; as when there is a cavity in one bone, which receives the head of the opposite bone, and also the same bone hath a head which may be received in the Cavity of the opposite bone; such a composition is in the Cubite and knee, that is in the connexion of the Thigh-bone.

And thus much of Desarticulation and the three kinds thereof. Synarthrosis or Coinculation, another kind of juncture, hath also three kinds thereof (Galile, Synarthrosis).

Suture is a composition of the bones after the manner of fowing things together, example whereof appears in the bones of the Scull. Gomphosis is when one bone is fastened in another as a pin is fastened in a hole; after which manner the teeth are fastened in their sockets in both the jaws. Harmony is when the bones are composed by the interposition of a simple line, after which manner many bones of the nose and face are joyned together,

Hitherto we have spoken of the first constitution of the bones by articulation and the kinds thereof; now it follows we treat of Symphyysis, or Growing together as we formerly said, is nothing else, than natural union of the bones; such union is made two manner of ways, that is, either by interposition of no other thing; after which for in successe of time the bones of the lower law grow together, which formerly in children were manifestly distinguished; or by the mediation of some Medium; but that happens in three manner of ways, by interposition of three several Medium, as first of Gristle, which kind of union the Greeks call Synchondrosis, after which manner the Share-bones grow together and also some Appendices in young bodies; secondly of a Ligament, and it is named by the Grecians Synenarthrosis, the name of a Nerve being taken in the largest sense, for sometimes it is used for a tendon, otherwise for a Ligament, otherwhiles for a Nerve properly so called and which is the author of sensibility.

Thirdly, the bones grow into one by interposition of flesh, called in Greek Synfarcomes, thus the flesh of the Gums fastens the teeth and makes them immovable. But if some be less pleased with this division, by reason of the obscurities, in which it seems to be involved, this following expression comes into my mind, which I was first admonished of by German Corvin Doctor of Physicke, which if you well observe it, is both blameless and more easy for your understanding.

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Y The
Of the Muscles and Bones,

The bones, which as pillars sustain the fabric of the whole body, are either

United mutually by Symphysis or union by which they are so conjointly that there is no dissimilar, nor heterogeneous body, at least which may be discerned, interposed between them. Such union appears in the two bones of the lower jaw at the Chin, in the bones of the Sternum, the Hanch with the Huckle-bones, and the Share-bones between themselves; of this union there are no more kinds, for by this it cometh to pass, that the bones, which were more and distinct meet together by interposition of one Medium, so wit a Gristle, which now indeed is no Gristle, but is turned into a Bone.

Either more loosely as by Diarthrosis, or Conjoined by that which they call Arthrodia, or Articulation, as when they do concur and are bound together, that some Heterogeneous substance may be noted between them, but the bones thus coposed are knit two manner of ways, that is,

or more straitly, as by Synarthrosis, where the bones are more straitly knit so that they can perform no motions in the body. Of this Articulation there are also 3 kinds, as

Enarthrosis, when the head of a bone is wholly received in the cavity of another, & hid therein, as the Thigh-bone is joined with the Huckle-bone.

Arthrodia, when in a slightly engraven or Conjoined cavity, the head of another bone is not wholly hid, but only received in part thereof, so that unless nature had otherwise provided a sufficient receptacle for the head of this bone (as by the ligaments of the neighbouring Muscles) it would otherwise have bin in perpetual danger of dislocation. Thus the Arme-bone is fastened to the shoulder-blade.

Gynglymos, when the bones mutually receive each other, such like composition hath the Cubit and Arme-bone.

As I have formerly reckoned up the bones, so here I have decreed to recite the muscles of man's body. Wherefore in the face we first meet with the broad or skin muscle, arising from the shhy panDicle, & covering the whole necke & almost all the face. Then follow 4 pertaining to the upper eye-lids. In the Orbs of the eyes lyce 14, that is 7, in each Orb, of which 4 are called right, two oblique and one pyramidal. Then succeed 4 of the nose, two external on each side one, and two internal, these draw it together and the other open it. After these come the ten muscles of the lower jaw, of which two are called the Crotaphites or Temporals; two Mastectors or Grinders; two round (which serve to me rather to perette the lips, than to this jaw), two little ones hid in the mouth, arising from the winged processe of the wedge-bone; two openers of the mouth being nervous or tendinous in their midst. Then follow the 8 muscles of the lips, that is 4 of the upper and as many of the lower, flitting and opening the mouth. The tongue with his ten muscles is hid as it were in the den of the mouth. Wherefore they muscles of the whole face are 51. In the fore part of the neck are found the muscles of the bone Hyoide, & throat; now 8 muscles hold the bone Hyoide, as equally balanced, of which there are 2 upper arising from the Chin, 2 on the sides from the processe Styloide perforated in their midst, through which the 2 openers of the mouth in that part nervous do pass, 2 arise from the Sterno, & lastly 2 from the upper rib of the shoulder-blade to the Coracoides, which also in their midst are nervous, in which place the two Mafloides lyce upon them.

An Epitome or briefe recital of all the Muscles of mans body.

As I have formerly reckoned up the bones, so here I have decreed to recite the muscles of mans body. Wherefore in the face we first meet with the broad or skin muscle, arising from the shhy panDicle, & covering the whole necke & almost all the face. Then follow 4, pertaining to the upper eye-lids, In the Orbs of the eyes lyce 14, that is 7, in each Orb, of which 4 are called right, two oblique and one pyramidal. Then succeed 4 of the nose, two external on each side one, and two internal, these draw it together and the other open it. After these come the ten muscles of the lower jaw, of which two are called the Crotaphites or Temporals; two Mastectors or Grinders; two round (which serve to me rather to perette the lips, than to this jaw), two little ones hid in the mouth, arising from the winged processe of the wedge-bone; two openers of the mouth being nervous or tendinous in their midst. Then follow the 8 muscles of the lips, that is 4 of the upper and as many of the lower, flitting and opening the mouth. The tongue with his ten muscles is hid as it were in the den of the mouth. Wherefore they muscles of the whole face are 51. In the fore part of the neck are found the muscles of the bone Hyoide, & throat; now 8 muscles hold the bone Hyoide, as equally balanced, of which there are 2 upper arising from the Chin, 2 on the sides from the processe Styloide perforated in their midst, through which the 2 openers of the mouth in that part nervous do pass, 2 arise from the Sterno, & lastly 2 from the upper rib of the shoulder-blade to the Coracoides, which also in their midst are nervous, in which place the two Mafloides lyce upon them.

The
The Throat composed of three gristles hath eighteen or twenty muscles, of which fixe or eight are common, and twelve proper; of the common there are two above, two below, and two at the sides of the first gristle, to which wee may add these two which serve for the opening of the Epiglottis, which are always found in great fourc foued beards for to prifue downe the Epiglottis.

The proper are twelve which almost all of them come from the second gristle, to be inferred into the first and third, of which some are before, others behind the Thyroides. Besides these, there are the M assessed which bend the head.

But in the backe part of the Necke there are twelve muscles also appointed for to move the head, so that in all there are fourteen muscles serving for the motion of the head, the two fore M asse side, and the twelve hind Muscles, that is to say, the two Splen, two Complexi, four Right, and so many oblique which are very short, so that they passe not beyond the first and second Vertebra.

The Necke hath eight Muscles, of which two are called the long lying before upon the bodyes of the Vertebræ; the two Speni which are at the sides; the two Spinat which runne alongft the Spine; the two transvers which goe to the transverse processes of the Cheft.

The Cheft hath eight Muscles, of which some are on the fore part, some on the hinder, others on the sides; they are all combined or coupled together except the Midriffe. Now of these there are the two Subselves, the two great Saw-muscles which proceed from the bases of the shoulder-blade; the four little Romboidea or square muscles, that is, two above and two below; the two Sterno- Iambæ; the two binders of the Gristles within the Cheft.

Besides there are twenty and two externall and as many internall Intercostall muscles, twenty foure Intercostalgenes, that is, twelve externall and as many internall; so that the Intercostal, and Intercostalgenes are 68, which with the twelve before mentioned make the number of 80 Muscles. Add to these the Midriffe being without an associate, and you hall have the number formerly mentioned, to wit, 81. But also if you will add to these the Muscles of the lower belly, I will not much gainsay it, because by accident they helps inspiration and exspiration.

Wherefor of the eight muscles of the Epigastrium, there are foure Oblique, of which two are dependent and so many ascendent, two right, to which you may add the two Affittling or Pyramidal muscles which come from the shaine-bone, if it please you to separate them from the head of the right muscules.

There are fixe or eight Muscles of the Loynes, of which two bend the loines which are the triangular, the two Semispina, two Sacri, two are in the midst of the backe, for which cause we may call the Rachiæ or Chine-muscles. Now, that hereafter we may severally and distinctly set downe the muscles of the extreme parts, will we come to the privities.

Where for the use of the Testicles there are two Muscles called the Cremaster, or Hanging Muscles. At the roote of the yard, or Perineum, there are four others, partly for the commodious pasing of the urine and seed, and partly for exercing the yardes. The Spinhert Muscle is seated at the Necke of the Bladder.

At the end of the right Gut are three Muscles, two Levatato Ani, or Lifters up of the fundament, and one Spinhter or shutting Muscle. Now let us proffe the Muscles of the Extremities, or Limbs. But it will be sufficient to mention onely the Muscles of one side, because seeing these parts of the body are double, those things which are said of the one may be applyed to the other.

Wherefore the muscles of the Arme, beginning with these of the shoulder-blade, at the leaft, are 42, for there are 4 of the shoulder-blade; of the Arme properly or particularly so called, even or eight; and there are three, four, or five proper muscles of the Cubite, that is appointed for the performance of the motions thereof; in the inner part of the Cubite are seven, and as many in the outer, but those of the hand are reckoned thirteene at the leaft.
The fourth of the shoulder-blade are the Trapezius resembling a Monks Crowle, which moves it upwards and downwards, and draws it backwards; the second is the Levator, or Lifter-up; the third the great Rhomboid lying under the Trapezius. The fourth, the lesser few muscle which is inserted into the Coracoides. The arm is moved forwards, backwards, upwards, downwards, and circularly.

The Pectoral muscle arising from the Clavicle, Breast-bone and neighbouring ribs, draws its forwards; the Humilis or low-muscle coming from the lower rib of the shoulder-blade draws it downwards; the Deltoideus upwards; and the Latissimus downwards, and somewhat backwards. But the three feared about the shoulder-blade move it about, or circularly.

The Epomii or Scapularis upwards; the Superficialis, which may stretch two, backwards and downwards; the Subscapularis which is in the Cavite of the shoulder-blade, forwards, so that by a certain vicissitude and succession of action they move it circularly. Two muscles bend the Cubite, the one named Bisceps or Two-headed; and the other Biceps or the Арна-muscle, but one, two, or three muscles extend this for if you have respect to the original, this muscle hath two or three heads, but one only insertion.

In the inside of the Cubite are seven muscles, one Patellaris, two wreft-binders; two pronators, one square, another in some fork round; two finger-benders, and one Adductor or Drawer aside. These fourteen internal and external muscles of the Cubite, do not indeed move the Cubite, but only serve to move the wande and with it the hand. These are the thirteen Muscles of the hand, and the Tener which may only be divided into two, but into five, not only by the diverse actions it performs, but also by the branches divided by a manifest space between these the second is called the Hypothemar, which lies under the little finger, as the Tener doth under the Thumbs; the third is the Adductor of the Thumbs; then follow the four Lumbirici and five Intercostes, although eight may be observed.

The whole Legge hath at the leaft yo. Muscles, for we reckon there are fourteen muscles in the thigh, there are eleven made for the use of the Legge; there are nine for the use of the Legge, three before and five behind which serve for the use of the foot and toes; in the foot there are feate teene. Therefore of the fourteen muscles serving the thigh two bend it, one called the Lumbaris, the other arising from the cavity of the Hanch-bone; but the three which make the Buttocks and the Triceps or Three-headed muscle, which if you please you may divide into three extend it. Besides these the four twin muscles, and two Obturator, of which the one is internal, the other external, turn the Thigh about. The Legge hath eleven, that is, the Long, the Membranous, the four Psoas or Hinde-muscles (three of which come from the Huckle-bone, but the other from the comminutior of the Share-bone); the Right, the two Vafe, the Crureus or Legge-muscle, and the Poplius, or Ham-muscle. These seated in the leg for the use of the foot and toes are three fore and five hind muscles; two of the fore bend the foot, one of which is called the Thioni anticus, the other Peronius, which you may divide into two. The third the bend of the toes, although it also partly bend the foot, to which also the binder of the Thumbs may be riveted. One of the hinde is the Toe-bender, others extend the foot, and are in this order; Two twins, one Plantarius, one Solius, one Tibialis posterior, and the great bend of the Toes, to which may be riveted the bender of the Thumbs. Of the fifteen seated in the foot, one is above, seated on the backe of the foot, which is called the Abductor of the Toes; another in the sole of the foot, to wit, the little bender of the Toes, which goes to the second joint of the Toes along the inside of the foot; the other lends his help to the great Toe, which you may call the Adductor of the Thumbs; another is seated on the outside for the use of the little Toe. To these be added the four Lumbirici, besides the eight Interossei, if you had rather, ten. And thus much may suffice for the enumeration of the muscles.
The Figure of the Muscles when the skin with its veins, the fat, and all the fleshly membrane are taken away, that part of the fleshly membrane excepted, which takes upon it the nature of a muscle, as being conjointly with the muscles.

- the muscle of the forehead.
- the temporal muscle.
- the muscle shutting the eye-lid.
- the muscle opening the wings of the nose.
- the fore part of the yoke-bone.
- the muscle of the upper lip tending to the nose.
- the beginning of the mafleter or grinding muscle.
- the broad muscle consisting of a fleshly membrane.
- the beginning thereof which rises immediately from the collar-bone & the top of the shoulder.
- that part thereof which bends forwards to.
- the muscle which lifts up the arm.
- the pectoral muscle.
- the membranous part of this muscle which is jointed to the nervous part of the first muscle of the Abdomen or belly.
- the fleshly portion thereof, from the 6 and 7. ribs, and the infection thereof.
- the muscle drawing down the arm.
- the oblique descending muscle of the lower belly.
- the infection of the greater saw muscle.
- the muscle bending the cubite.
- the hind muscle bending the cubite.
- the muscle extending the cubite.
- the two-headed muscle extending the wretch.
- the muscle producing the broad tendon on the backe of the hand.
- his tendon.
- the muscle turning up the Wand.
- the upper muscle flatting the Wand.
- the second of the arm-benders, whose beginning is s, and tendon s, s, a portion of the muscle, whereof one part yeelds tendons to the wretch, the other to the thumbe.
- the fleshly articulatation of the thumbe.
- a muscle inferred into the wretch, lying neere to the following muscle, a muscle devisid into two tendons, the one whereof is inferred into the first joint of the thumbe, the other into the following.
- the first muscle of the thigh, whose head is at a, and tendon at b, and infection at a, a, the end of the second muscle of the thigh.
- the end of the third muscle of the thigh.
- the first muscle of the legge, his beginning at a, almost wholly membranous at 3.
- the ninth muscle of the legge.
- the eight of the legge.
- a portion of the sixth and seventh of the thigh.
- the Glandules of the groines.
- the eighth of the thigh.
9, the second of the legge. 11, the innermost of the ankle. 13, the sixth muscle of the foot, his original. 15, the seventh of the foot. 16, the tendon of the muscle lifting up the great toe. 17, the muscles extending the four other toes. 18, the abductor of the great toe. 19, a transverse ligament. 20, a tendon of the ninth muscle of the foot. 21, the first muscle. 22, the fourth muscle of the foot. 23, the tendon of the third muscle. 24, a muscle bending the third bone of the four lesser toes.
THE SEVENTH BOOK
Of Tumours against Nature
in Generall.

C H A P. I.

What a Tumour against Nature, vulgarly called an Impostume, is,
and what be the differences thereof.

An Impostume, commonly so called, is an affection against nature,
composed and made of three kinds of diseases, Distemperature, ill
Conformation, and Solution of Continuitie, concurring to the
hindering or hurting of the Action. An humor, or any other matter,
answering in proportion to a humor, abolishing, weakening,
or depraving of the office or function of that part or body in
which it refides; causeth it.

The differences of Impostumes are commonly drawn from five things;
quantity, matter, accidents, the nature of the part, which they affect or
possesse; and lastly, their efficient causes. I have thought good for the better under-
standing of them, to describe them in this following Scheme.

A Table of the differences of Tumors.

Great, which are comprehended under the general name of
Phlegmons, which happen in the fleshy parts, by Galen, Lut de
mort. cent. natur. & lib. 2. ed. Glaneum.
Indifferent, or of the middle sort, as Fellons.
Small, as those which Avicen calls Balancres, i. Pustules and Pu-
stules, all kinds of Scabs and Lepruces, and lastly, all small
breakings out.

Colour, from whence Impostumes are named white, red, pale,
yellow, blew, or blacke, and so of any other colour.

Paine, hardnesse, softnesse, and such like, from whence they are
said to be painefull, not painefull, hard, fett, and so of the rest.

Hot, and that from Sanguine, from whence a true Phlegmon.
Cold, and that from Cholerick, from whence a true Phegmaticke,
or that from Sanguine, from whence a true Oedema.

Not natural, which hath exceeded the limits of its natural
goodnesse, from whence illegitimate

Naturall, either,

Cholerick, from whence a true Phegmaticke,

or Cholerick,

Phlegmaticke, from whence a true Oedema.

of a sanguine

humor,

or of a choleric

humor,

of a phegmatic

humor,

of a melechonic

humor.

Carbuncles, Gangrenes, eating ulcers, Sphaceles are caused.
Of the grower, the eating Her-
per, of the tubercle the Herpe-
russane is made.
Wattery and Barretous Impostumes, the Kings-evil, knots at all phleg-
matick swellings, & excrescences.
The exquifite or perfect Scyrrume,
hardnesses and all sorts of cance-
rous Tumors.

The condition and nature of the parts which they possesse, from whence
the Ophthalmia, is a Phlegmon of the eyes, Parasit a tumor neere the ears.
Eentrechis or a whitlow at the roots of the nails, and so of the rest.

From the efficient causes, or rather the manner of doing. For some impostumes
are said to be made by definitions, others by congellition, those are commonly hot, &
the other commonly cold, as it shall more manifeftly appear by the following chapters.

What an Impo-
postume vulgar-
ly so called is.
The material
causeth these
postumes, or un自然al

more.
Here are two general causes of Impostumes, Fluxion, and Congestion. 

Defluxions are occasioned, either by the part sending, or receiving, the part sending discharges it self of the humors, because the expulsive facultie resides in that part is provoked to expell them, moved thereto, either by the trouble from thee of their quantity or quality. The part receiving draws, and receives occasion of heat, paine, weakenesse (whether natural, or accidentally) openesse of the paffages, and lower situation.

Three causes of heat.

Four causes of paine.

Two causes of weakness.

Two causes of congestion.

And thus oftentimes cold impostumes have their originall from agroist nature, and so are more difficult to cure.

Lastly, all the causes of Impostumes may be reduced to three, that is, the primitive, or external, the antecedent, or internal; and the conjunct, or containing, as we will hereafter treat more at large.
Of Tumors against Nature

It is known even to the vulgar that all differences of tumors arise from the nature and condition of the matter which flows down and generates them. Also, they are known by such accidents as happen to them, as colour, heat, hardness, tension, pain, tension, resilience.

Wherefore pain, heat, redness, and tension indicate a sanguine humor; coldness, coldness, and no great pain, phlegmatic; tension, hardnecess, the indwelling colour of the part, and a pricking pain by fits, melancholic; and yellowness and pale colour, biting pain without hardness of the part, choleric.

And besides, impostumes have their periods and exacerbations following the nature and motion of the humors of which they are generated. Wherefore by the motion and fits it will be no difficult matter to know the kind of the humors.

Impostumes which are curable have four times, their beginning, increase, state, and declination, and we must alter our medicines, according to the variety of these times. We know the beginning by the first swelling, of the part; the increase when the swelling, paine, and other accidents do manifestly increase, and enlarge themselves, the state, when the forebodings of the tumor degenerate, and change itself, another kind of humor; the declination, when the swelling, paine, fever, tension are lessened. And from hence the Chirurgion may presage what the end of the tumor may be; for tumors are commonly terminated four manner of ways, if so be that the motion of the humors causing them be not intercepted, or they without some manifest cause, do flow back into the body.

Therefore first they are terminated by insensible transpiration, or resolution; secondly, by suppuration when the matter is digested and ripened; thirdly, by induration when it degenerates into a Scyrrhus; the thinner part of the humor being dissolved; the fourth, which is the worst of all, by a corruption and Gangrene of the part, which is, when overcome with the violence, or the abundance or quality of the humor, or both, it comes to that disposer, that it loses its proper action.

It is best to terminate a tumor by resolution; and the worst by corruption; suppuration and induration are between both, although that is far better than this. The signs by which the Chirurgions may presage that an impostume may be terminated by resolving, are the remission, or finking of the swelling, paine, pulsation, tension, heat, and all other accidents, and the unaccustomed liveliness and itching of the part; and hot impostumes are commonly thus terminated, because the hot humor is easily resolved, by reason of its subtility.

Signs of suppuration are the intention or encrease of paine, heat, swelling, pulsation, and the fever, according to Hippocrates, paine and the fever are greater when the matter is suppuring, then when it is suppurred.

The Chirurgion must be very attentive to know and observe when suppuration is made; for the purulent matter oft times lies hid (as Hippocrates saith) by reason of the thicknes of the part lying above, or over it.

The figures of a tumor to be terminated by resolution.

The figures of a tumor to be terminated by suppuration.

The proper signs of a long running tumor, of a phlegmataenic humor, of a melancholic humor, of a choleric humor.

The figures of impostumes.
part. For to potters vessels dried in the Sunne grow hard. But the unskilfull Chirur-
gion may occasion a Sczrrhus hardneffe by another means, as by condensating the
skimnes and intrafatting the humors by too much use of repercussives. But you may
perceive an Impofume to degenerate into a Gangrene this, if the accidents of heat,
redneffe, pulfation and tension shall be more intenfe, than they are wont to be in
purification; if the paine prefently ceafe without any manifet caufe, if the part waxe li-
vide or blacke; and laftly, if it ftinke.
But we shall teatre of this more at large when we come to teatre of the Gangrene
and Sphæclus. A fuddain diminution of the tumor, and that without manifet caufe,
is a signe of the matter fallen backe, and turned into the body againe, which may be
occasioned by the immoderate use of refigerating things. And fometimes
much flatulencia mixed with the matter, although there be no fault in thofe things
which were applied.
Feavers and many other maligne Symptomes, as Swoundings and conuUion, by
transflation of the matter to the noble parts, follow this flowing backe of the humor
into the body.

CHAP. III.
Of the Prognostick in Impofumes.

Cold tumors
require a lon-
g'er cure.

Tumors made
of matter not
natural, are
more difficultly
cured.

Vmors arifing from a melancholy, phlegmaticke, groffe, tough, or vifous
humor, ask a longer time for their cure, than thofe which are of blood or
choler. And they are more difficulty cured which are of humors not
natural, than thofe which are of humors yet contained in the bounds of
nature.

For thofe humors which are rebellious, offend rather in qualitative, than in quantitiue,
and undergoe the divers furnes of things diflenting from nature, which are joyned
by no fimilitude or affinity with things natural, as fucr, pouitis, honey, the dregs of
oile, and wine; yea, and of folid bodies, as stone, land, caele, strawes, and some-
times of living things, as Wormes, Serpents, and the like monfters.
The tumors which poffeffe the inner parts, and noble entraiies, are more dangrous
and deadly, as also thofe which are in the joints, or more to them. And these tumors
which feaze upon great veffels, as veines, arteries, and nerves, for feare of great effu-
ition of blood, wafting of the spirits and conuUion. So impofumes of a monftrous
bignefse are often deadly, by reafon of the great resolution of the spirits caufe by
their opening. Thofe which degenerate into a Sczrrhus are of long continuance and
hard to cure, as alfo thofe which are in hydropick, leprous, feabby and corrupt bo-
dies, for they often tumbe into maligne and ill conditioned vuleres.

CHAP. V.
Of the general cure of Tumors agginft Nature.

What must be
considered in
undertaking the cure of the
more.

Here be three things to be obserued in cure of impofumes. The firft is the
effectue thereof; the second the quality of the humor causing the impofume;
the third the temper of the part affeced. The firft indication drawne from
the effence, that is, from the greatneffe, or smallneffe of the tumor, varies the manner
of curing, for the medicines muft be increafed or diminifhed according to the great-
neffe of the tumor. The second, taken from the nature of the humor also changes
our counfell, for a Phlegmatus muft be otherwife cured than an Eryphelas and an
Oedema than a Sczrrhus, and a fimple tumor, otherwise than a compoune.
And alfo
you must cure after another manner a tumor comming of an humor not natural,
that which is of a natural humor, and otherwife that which is made by con-
genion,
Of Tumors against Nature in General.

Lib. 7.

The temperature indicates that some medicines are convenient for the fleshy parts, as those which are more moist; others for the nervous, as more dry; for you must apply some things to the eye, and others to the throat; one sort of things to these parts which by reason of their rarity are easily subject to defluxion, another to those parts which by their density are not obnoxious to it.

But we must have good regard to the site of the part, as if it have any connexion with the great vessels, and if it be fit to pour forth the matter and humor when it is suppured.

Galen by the name of faculty understands the use and sense of the part. This hath manifold indication in curing, for some parts are principal, as the Brain, Heart, and Liver; for their virtue is communicated to the whole body, by the nerves, arteries, and veins.

Others truly are not principal, but yet so necessary that none can live without them, as the Stomach. Some are endued with a most quick sense, as the eye, the membranes, nerves, and tendons, whereas they cannot endure acrid and biting medicines. Having called to mind these indications, the indication will be perfected by these three following intentions, as if we consider the humor flowing down, or which is ready to flow; the conjunct matter, that is, the humor impasted in the parts, the correction of accidents; yet so that we always have care of that which is most urgent and of the cause. Therefore first repercusses must be applied for the antecedent matter, strong or weak, having regard to the tumor as it is then, only excepting five conditions of Tumors; the first is, if the matter of the Tumor be venenum; the second, if it be a critical abscess; the third, if the defluxion be near the noble parts; the fourth, if the matter be grosse, tough, and viscide; the fifth, when the matter lies fatter in, that is, flows by the veins which lies more deep; the sixth, when it lies in the Glandules. But if the whole body be plethoric, a convenient diet, purging, and Phlebotomie must be appointed, frictions and bathes must be used. Ill humors are amended by dier and purging. If the weakness of the part receiving draw on a defluxion, it must be strengthened.

If the part be inferior in its site, the patient be so seated, or layed, that the part receiving, as much as may be, may be the higher. If paine be the cause of defluxion, we must allay it by things mitigating it. If the thinness, or lightness of the humor cause defluxion, it must be insufflate by meats and medicines. But for the matter contained in the part, because it is against nature, it requires to be evacuate by revolving things, as Caraplaumes, ointments, fomentations, cupping glasses; or by evacuation, as by scarifying, or by suppuring things, as by ripening and opening the Impostume. Lastly, for the conjunct accidents, as the Fever, paine, and such like, they must be mitigated by allaying, mollifying and malaxing medicines, as shall shew more at large hereafter.

Chap. VI.

Of the four principal and general Tumors, and of other impostumes which may be reduced to them.

He principal and chief Tumors which the abundance of humors generate are four, A Phlegmon, Erythrasma, Oedema and Swellings: innumerable others may be reduced to these, distinguished by divers names according to the various condition of the efficient cause and parts receiving. Whereas a Phlegmon, Pneum, Phelon, Carbuncle, inflammation of the eyes, Squinchy, Bald, & lastly all sorts of hot and moist tumors may be reduced to a Phlegmon. The Herpes millitaris, the eating Herpes, Ringwormes and Tetters and all impostumes brought forth

What we must understand by the nature of the parts.

What we must understand by the faculty of the parts.

What we must consider in performing the cure.

What things dišverse are from using repercusses.
Of Tumors against Nature in General.

Of a Phlegmon.

Phlegmon is a general name for all Impostumes, which the abundance of inflamed blood produces. That is called a true Phlegmon, which is made of laudable blood, offending only in quantity. But a bastard Phlegmon, or a phlegmonous Impostume hath some other, and proper name; as a Carbuncle, Felon, Gangrene, Sphacel, and the like maligne Pustules. So when there is a confluence of diverse humor into one tumor, divers kinds of phlegmonous Impostumes called by diverse names, according to the more abundant humor, arise; as if a small portion of phlegme shall be mixed with a greater quantity of blood, it shall be called an Oedematous Phlegmon; but if on the contrary, the quantity of phlegme be the greater, it shall be named a phlegmonous Oedema, and so of the rest; always naming the tumor, from that which is most predominant in it.

Therefore we must observe that all differences of such tumors arise from that, either because the blood causing it offends only in quantity; which if it doe, it causes that tumor which is properly called a Phlegmon; if in quality, it makes a phlegmonous tumor, because the matter thereof is much departed from the goodness of blood.

But blood is said to offend in quantity, either by admixture of some other matter, as phlegme, Choler, or melancholy, from whence proceeds Oedema, Erysipelas and Scyrrhus Phlegmons; or by corruption of its proper substance from whence Carbuncles, and all kinds of Gangrens; or by concretion, and when nature is disappointed of its attempted and hoped for suppuration, either by default of the air, or patient, or by the error of the physic; and hence oft times happen Atheroma, Steatomas, and Melicerides. Although these things be set downe by the ancients, of the simple and simular matter of the true Phlegmon; yet you must know, that in truth there is no impostume, whose matter exquisitely shows the nature of one, and that ample humor without all admixture of any other matter, for all humors are mixed together with the blood, yet from the plenty of blood predominating, they are called Sanguine, as if they were of blood alone.

Wherefore if any Tumors resemble the nature of one simple humor, truly they are not of any natural humor, but from some humor which is corrupt, vitiated and offending in quality; for so blood by adustion degenerates into choler and melancholy.

Therefore a true phlegmon is defined by Galen; A tumor against nature, of laudable blood flowing into any part in too great a quantity. This tumor though most commonly it be in the flesh, yet sometimes it happens in the bones, as Hippocrates and Galen witnesse.

A phlegmon is made and generated thus, when blood flows into any part, in too great a quantity, first the greater veins and arteries of the affected part are filled, then the middle, and lastly, the smallest and capillary; so from thence thus diffused, the blood sweats out of the pores and small passages like dew, and with this the void spaces which are between the simular parts are first filled, and then with the same blood all the adjacent
adjacent parts are filled, but especially the flesh, as that which is most fit to receive
defluxions, by reason of the spongy rarity of its substance, but then the nerves,
tendons, membranes, and ligaments, are likewise stuffed full: whereupon a Tumor
must necessarily follow, by reason of the repletion which exceeds the bounds of
nature; and from hence also are tension and resistence; and pain also happens at
the same time, both by reason of the tension and preternatural heat.

And there is a manifest pulsation in the part, specially whilst it suppurates; be-
cause the veins, arteries, and nerves, are much pained, being they are not only
heated within by the influxe of the fervide humor, but pressed without
by the adjacent parts. Therefore seeing the paine comes to all the foeforeaid parts be-
cause they are too immoderately heated and pressed, the arteries which are in the
perpetual motion of their Systole & Diastole, whilst they are dilated, strike upon
the other inflamed parts, whereupon proceeds that beating paine.

Hereunto add, the Arteries then filled with more copious and hot bloud, have
greater neede to fecke refrigeration by drawing in the encompassing Aire; where-
fore they much, as of necessity, have a conflict with the neighbouring parts which
are swollen and pained. Therefore from hence is that pulsation in a Phlegmon which
is defined by Galen, an agitation of the arteries, painfull, and feenable to the Patient
himselfe; for otherwise as long as we are in health, we doe not perceive the pulsa-
tion of the arteries.

Wherefore these two causes of pulsation, or a pulsillike paine in a phlegmon are
worthy to be observed, that is, the heat and abundance of bloud, contained in the
veines and arteries, which more frequently than their wont incite the arteries to mo-
tion, that is, to their Systole and Diastole; and the compression and tightening of the
said arteries, by reason of the repletion and distention of the adjacent parts, by whose
occasion the parts afflicted and beaten by the trembling and frequent pulsation of
arteries are in paine.

Hence they commonly say, that in the part affected with a Phlegmon, they feele
as it were the fennce or stroke of a Mallet or Hammer smiting upon it. But also be-
sides this pulsation of the arteries, there is, as it were another pulsation with itching
from the humors whilst they putrefie and suppurate, by the permixion, motion,
and agitation of vapours thereof arisine.

The cause of heate in a Phlegmon is bloud, which whilest it flowes more plenti-
fully into the part, is as it were troden or thrust downe, and caueth obstruction, from
whence necessarily follows alprohibition of transpiration, and a putrisfication of
the bloud, by reason of the preternatural heat. But the Phlegmon lookes red by reason
of the bloud contained in it, because the humor predominant in the part shines
through the skinne.
otherwhiles in a Gangren, that is, when the facultie, and native strengthe of the part affected, is overwhelmd by the gretnesse of the defilion, as it is reported by

Galen. The Chirurgion ought to consider all the things, that he may apply and vary such medicines as are convenient for the nature of the Patient, and for the time and condition of the part affected.

Chap. IX.

Of the cure of a true Phlegmon.

What kind of diet must be prescribed in a Phlegmon.

He Chirurgion in the cure of a true Phlegmon must propose to himselfe four intentions. The first of Diet; This, because the Phlegm is a hot affect and causes a feaver, must be ordained of refrigerative and humecting things, with the convenient use of the five things not natural, that is, aire, meat, and drink, motion and reft, sleepe and waking, replation, and inanition; and lastly, the passions of the minde. Therefore let him make choife of that aire which is pure and cleere, not too moift; for fear of deflution, but somewhat coole; let him command meates which are moderately coole and moift, warming such as generate blood too plentifully; such will be brothes not to far, feacond with a little Borage, Lettuce, Sorrel, and Succory, let him forbibe the use of all spices, and ftronge Garlick, and Onions, and all things which heathe the blood, as are all farty and fweet things, as those which eafily take fire. Let the Patient drinke small wine, and much alized with water; or if the feaver be vehement, the water of the decoction of Licoris, Barly, and sweet almonds, or water and fugar; always having regard to the strength, age, and cuftome of the Patient.

For if he be of that age, or have fo led his life, that he cannot want the use of wine, let him ufe it, but altogether moderately. Reft must be commanded; for all bodies waxe hot by motion, but let him chiefly have a care that he doe not exercise the part posiffed by the plegmon for feare of a new deflution. Let his sleepe be moderate, neither, if he have a full body, let him sleepe by day, specially preffently after meate. Let him have his belly foable, if not by nature, then by art, as by the frequent use of glifters and suppositories. Let him avoid all vehement perturbations of minde, as hate, anger, brawling, let him wholly abatine from venery.

This manner of diet thus prescribed, wee must come to the fecond scope, that is, the diversion of the deflution, which is performed by taking away its caufe, that is, the fulneffe and illneffe of the humors. Both which we may amend by purging and bloud-lettins, if the strength and age of the patient permit.

But if the part receiving be weake, it must be strengthened with those things which by their affrimion amend the openneffe of the passages, the violence of the humor being drawne away by cupping glifters, frictions, ligature. But if paine trouble the part, which is often the occasion of deflution, it must be mitigated by medicines allwaging paine.

The third scope is to overcome the conjunct caufe. That we may attaine to this, we must enter into the consideration of the tumor, according to its times, that is, the beginning, encreafe, state, and declination. For from hence the indications of variety of medicines must be drawne. For in the beginning we use reprehensives to drive away the matter of the Phlegmon flowing downe, as the white of an Egge, Oxicrate, the juices or waters of Houflekle, Plantaine, Roses, Cataplaumes of Henbane, Pomgranate, Pills, Balaufies, Bole armenickes, Terra sigillata, ute of Roses, Quinces, Mirtilles, Poppies.

Of these simples, variety of compound medicines arifes. This may be the forme, of a Cataplaume, R, far, bordei 3ij, fucce femperverti, planctang, an. 3ij, pule malenciy, balanfium & refar, an. 3ij el. mirtilli, & refar, an. 3ij, fias Cataplaumes. Another, R, Plantag, folani, hymosum, an. 3ij, cauda cypin, spal barb. cimunm, an. m. 1, coquum perfite in exxtur, pileturtur, trojefantur, addendo pulveris mirtill.me, caprnis, & ref. rub, an. 3ij, farin. fab. 3ij, olfer refar. & cydon.an.3ij: mixe
mix them and make a cataplasm to the form of a liquid pultis. And you may
use this liniment, by dipping linen clothes in it, and applying to the part; as R, ol.
ymph, & rofam.an. 3iij, 9i, rofam. felani & plantag.an. 3iij, alsamia. ovum um.3i, fum linimentum. Alsium, tos fatum & ung. Album, camphor. Raps are good to apply
to it, as in like manner. Emp. Dicasdthes dissolv'd in vinegar, and oile of Rofs, and also
Poppers may be used. In the increas you must have care of the humor flowing
down, and of that which already impacted in the part, did formerly fall down.
Therefore represerves must be tempered & mixed with difficuing medicines, but
so that they may carry the chiefe sway, as R, ole. melam, aftisam plantag. an. m. 3iij, coquantur
in ovibus, contudunantur, tegulis adde farina faborum & baroi an. 3iij, pul. rofam. rubi & ephimbus an. 5i, ol. rofam & chamam an. 3i, fat cataplasm a d formam pultis fatis
liquide. Another. R, farina hard. 3iij, farina sem lini & fumam. an. 3iij, coquantur
in aqua commutu, addendo sub finem pul.mirotorum, rofarn. & chamam an. 3iij, ax-
umia. aneth. & ole. rofam an. 3iij, misce, fat cataplasm a.
But in the flate the represerves, & difficuinges ought to be alike: with some anodine,
or mitigating medicines, if it be painfull, as R, rad. Albea. 3iij, melam, vittic. an.
m. 3i, coquantur sub cineribus, addendo farin. faborum & lentum an. 3iij, pulvores chamam. & mit.otlos an. 3iij, olei chamam. & rofam an. 3iij, exumgium an. 3iij, fat cataplasm a. Another
R, mica. potes tritici aqua calida macerati flis, pulvores rofam. rub. & ephimbus. an. 3iij, ole. aneth & melam com. an. 3iij, misce omnia fumam & fum. cataplasm a d formam pultis fatis
liquide, which is of chiefe Ufe when there is paine.
But when the violence of paine and other fymptoms are affwaged, it is likely that
the plegem is come to determination. Wherefore then we must use more power-
full and strong difficuinges, and onely then beginning with the more gentle, left the
fubter part of the humor being diffolvd, the grofter, remaining in the part, should
grow hard, as R, mel. bifonat. am. m. 3iij, coquantur addendo farina baroi an. 3i, melis com. an. 3i, ol. chema. & melotlos an. 3iij, fat cataplasm a. Or R, radicem Tritum. & Cucumer. agregi
an. 3iij, forum chamam. & melotlos an. m. 3iij, coquantur in hydromelis addendo farina sem. lini & fumam. an. 3iij, ol. aneth, axumgium. Anfer. or anit. an. 3iij, fat Cataplasm a. And this plaifter following may here finde pla-
c.
R, Dicosbl. mug. an. 3iij, Empl.de melam. 3iij, olei aneth. & chamamel. an. 3iij, diflolve
them all together and make a medicin for your ufe. Or R, Empl.de mace. & oxycro.
an. 3iij, Empl. Dicosbl. trect. 3iij, olei litorum & chamamel. quantum fatis eft, and make
thereof a forte plaister.
The fourth scope of curing a Phlegem consists in correction of the accidents
which accompany it, of which paine is the principall.
Wherefore the Chirurgeon must be diligent to affwage it, for besides, that it
weakens the strength, and debilitates and depraves the function, it also caufes defini-
tions by drawing the bloud and spirits to the part affected.
According to the varietie of paine there must be variety of medicines, as R, mica
pens atia in late tepido macerati flis, vitielli. ovorum an. 3iij, ol. rofam. 3iij, croci 3iij, fat catap-
plasma. Or. R, florum chamam. & melotlos an. m. 3iij, farina fem. lini. & fumam. an,
3iij, fat cataplasm a pultis, fatis liquide. Or R, macegin. rad. althes & fumam an. 3iij, ol. rofam. & aneth. an. 3iij, farin. fem. lini. quantum fatis, ut inde formetur cataplasm a
fatis mole.
But if the paine remaine, and yeeld not to these remedies, we must flie weaker,
making use of narcoticks, or lupidificatives, but with care left we benum, or dead the
partes R, fol. hyosciani & popan. sub. cineribus celerorum an. 3iij, adips fals. & ol.
rofam. 3iij, croci 3iij, fat cataplasm a: or. R, fol. cinctu & solani furici. an. 3iij, coquantur
sub cineribus, pimentur. & tracycicum addendo: unguent. popul. & ol. rofam. an
3iij, farin. fumam. quantum fatis eft, ut inde formetur cataplasm a d formam pultis
liquide.

Lib. 7.
Of Tumors against Nature in General.
The signs of a Phlegmon turning to an Abscess.

It often happens, that the humor is so impacted in the part, that it cannot be repressed, and so gorged, that it cannot be diffused; which we may know by the greatness of the heat and swelling, by the bitterness of the prickling pain, the fever, and tullation, and heaviness.

Wherefore laying aside all hope of diffusing, we must come to suppurations. For which purpose Galen foments the swollen part with water, or oil being warme, or with both of them; and then applies this following cataplasm.

R. farina trice vel mica panis, 3.ijij. ol. com. 3.ij, aqua com. quantum sufficit, fuis cataplasmatis: or R. rad. itior. alb. & althi an. 3.ijij. sol. matrona, parietar. & fenciosio ana. m. j. coquautur in hydromelie, piffentur, traecit adde farin. sem. linz jij. an- angue faculte, ol. iliorum an. 3. B: fuis cataplasmatis: Or R. melona, biymalv. violar. an. m. j. carci barum ping. n. x. passul. 3.ijij. coquautur in ag. com. tufiis. & traciis. adde n. elix com. 3.j. ung. bafilicon. & buxiri recent. ana. 3.j. fuis cataplasmatis. You may profitably use for the same purpose Empl. Diachylon magnum, or Bafilicon. Or R. Empl. Dyachil. mag. 3.ijij. ung. bafilicon. 3.ol. iliorum 5i. Of these mixed together make a medicine for the forefaid use.

When the heat, paine, fever, and other accidents shall remit, when the tumor hath a sharp head, when by the pressing of your finger you finde the humor to flow as it were to and fro, then you may know that it is ripe.

Wherefore without any further delay the tumor must be opened, lest the too long stand up, corrode the adjacent parts, and the ulcer become sinuous and fistulous.

For this usually happens, especially then, when the matter is venenat or maligne, or when the swelling is near a joint, or at the fundament, or such like hot and moist places.

For by the decree of Hippocrates we should anticipate the maturation of such tumors by opening.

They may be opened with an incision knife or cautick, and that, either small or potential. For if the patient shall be hartlefe and leffe confident, so that he either cannot, or will not endure any instrument, you must make way for the matter by a potential cautery. You may also doe the buttoffe by another flight, as thus.

Thrust the point of a sharp knife or lancet, through a braile counter that it may stand fast in the midst thereof; then cover it diligently with some Emplaster or Cataplasm, that neither the Patient nor flanders by perceive the deepe: then laying on the platter as that you would make a passage for the matter by that means, but when you have fitted the point to the part, where it is fit to open the tumor, so guide the Counter with your fingers, that you may presently make an impriofion into the Tumor, sufficient for excluding the matter. I have here expresf three definitions of such Instruments, that you may use thefe, either bigger, leffer or indifferent, as occasion shall serve.

Counters with the points of Knives or Lancets put through them.

A. shewes the Counter or piece of Silver.
B. shewes the point of the Lancet.
Of Tumors against Nature in General.

Other instruments for opening Abscesses.

Rings in which little knives are hid, fit for to open Abscesses.

The Description of a Trunk, or hollow Instrument going with a spring.

A. Shewes the thicker pipe.
B. Shewes another which enters and is fastened in the other by a screw.
C. The point of the Instrument, looking out.
D. The spring which forces the Instrument.

But there are several things which must be diligently considered in opening all sorts of Impostumes. The first is, that you put your knife to that part of the Abscess which is the looser, and yields to the impression of your fingers, and where it falls into a head, or point. The second is, that you make choice of that place for division which is the lowest, that so the contained impurity may the more readily flow out, and not stay in the passage. The third is, that it be made according to the wrinkles of the skin, and the right fibers of the Muscles lying next under the skin. The fourth is, that you turn your knife from the larger vessels and Nerves worth speaking of. The fifth is, that the matter contained in them be not evacuated too abundantly at once in great Abscesses, lest thereby the strength be debauched, the spirits being much wasted together with the unprofitable humor. The sixth is, that the affected part be handled as gently as you can. The seventh is, that after the opening when the matter is evacuated, the Abscess be clench'd, filled with flesh, and lustily consolidated and cicatrized. But seeing that commonly after such sections some part of the Tumor remains, all the contained humor being not wholly suppurred, the Chirurgion may perceive that this is an implicit state, that is, Tumor and Ulcer. But the Cure thereof must be so, that you take away the Tumor before the ulcer, for the ulcer cannot be healed before the part be restored to its nature. Therefore the suppurations formerly preferred must be used, and the ulcer must be dressed for two or three days with this following Medicine.

R. Pitellium unius ovi, tercebrath Potass. &c. Segar an. 3. fist medicamentum. Then you must seek to cleanse it by this following Medicine.

R. Melle
Of feavers, and the cures of these feavers which accompany Phlegmons.

The feavers of a Phlegmon. When a Feaver is.

Mongst the symptoms which most usually accompany Phlegmons, & afflict all the body of the patient, Feavers are the chief, that is hot, and dry different persons kindled in the heart, and thence by the Artery is sent over all the body; yet these which usually follow this kind of Tumors are Ephemeræ, that is, Diary, unpurid Syntax or purid Syntax, of whose nature and order of cure I will here briefly relate what I have learnt from my Matters, that is, Doctors of Phyllece, as I have been conversant with them in the practice of my Art.

The Ephemeræ, or Diary [that is of one day] is a hot and dry distemper kindled in the vital spirits. It hath that name, because by its own nature it carries not above the pace of one day or twenty four hours, by reason it is kindled in a fabric easily disippable matter.

The efficient causes of this Feaver are wearinesse, hunger, drunkenesse, anger, fury, sorrow, watching, great and piercing cold, Adulteration, Bathes, and manner of living inclining more to heat than ordinary, applying, using or drinking of acrid medicines as Poisons, or of hot meats, and drinks; to conclude, all the efficient causes common to all Feavers, purification only excepted which properly appertaines to purdite feavers.

For a Bubo also, which is a Phlegmon of the Glandules, causes a Diary, as Hippocrates thiew. All feavers proceeding from the Tumors of the Glandules are evil, the Diary excepted. Which Aphorism must be understood waryly and with that distinction which Galen gives in his commentary, where he saith: It is only to be understood of Tumors rifen in the Glandules without occasion, that is, without any evident and manifest cause; for otherwise Feavers that thence take their original, though not Diary, yet are not all evil, as we learn by Buboes in Children, and the venereous Buboes, which happen without inflammation, or corruption of the liver, for such commonly have no maligne Feaver accompanying them, which thing is worthy a Chirurgians observation.

The common signes of a Diary are, a moderate and vaporous heat feeling gentle to the hand, a pulse swift and frequent, sometimes great and strong, as when the Diary is cau’d by anger, sometimes little, if the Fever proceed from sorrow, hunger, cold, crudity; for other respects equal and ordinary.

The most certaine signes are, if the Fever come upon one not by little and little but suddenly and that from some externall and evident cause, no loathing of meat, no causticks, no deep sighing, no deep sleep, yawning, great paine, restlesse, shaking nor cold going before, and lastly no other troublome symptome preceding. We here make no mention of the urine, because most frequently they resemble the vrimes of found bodies; for in so short a time as Diaries endure, there cannot to great a perturbation be raied in the blood that they may be signes thereof found in the vrimes.

A Diary is ended in one fit, which by the proper nature of this Fever lasts but one day,

Chap. XI.
... a...  although sometimes, otherwise it is extended to three, or four days space, and then it easily degenerates into a Putrid, especially any error of the Patient, Distillation, or those which attend him concurring therewith, or if the exterior things be not rightly fitted.

This Fever is terminated either by insensible transpiration, or by the moisture of the skin, or by a sweate naturally, gentle, and not ill smelling; to this Diary wee may referre the unputrid Synechus, generated of blood not putrid, but only heated beyond measure. For usually there arises a great heat over all the body, by means of the blood immoderately heated; whence the veins become more tumid, the face appears fiery, the Eyes red and burning, the breath hot, and to conclude, the whole habite of the body more full, by reason of that Ebulition of the blood, and the diffusion of the vapours thence arising over all the body: Whet we see, that this kind of Synechus may be called, a vaporous Fever. To this Children are incident as also all fanguine bodies, which have no ill humors. The cure of this and the Ephemerus or Diary is the same; because it may scarce seeme different from the Ephemerus in any other thing, than that it may be prolonged for three or four days. Wherefore whatsoever we shall say for the cure of the Ephemerus, may be as well applied to the Synechus, bloodletting excepted, which in an unputrid Synechus is very necessary.

Now the Cure of a Diary Fever consists in the decent use of things not natural, contrary to the cause of the disease; wherefore bastes of warmth and natural water are very profitable; so that the Patient be not Pletoricke, nor thust with excrements, nor noxious to catarrhes and defluxions, because a catarrh is easily caused and augmented by the humors diffused and dissolved by the heat of a bath; therefore in this case we must eschew frictions, and anointing with warme oile, which things notwithstanding are thought very useful in the kind of Feavers, especially when they have their original from extreme labour, by attrition of the skin or a Bub. Let this be a generall rule, that to every cause, whencesoever we shall say for a remedy, as to labour, rest, to watching, sleep, to anger and sorrow, the grateful society of friends, and all things replenish'd with pleasant good will; and to a Bub, the proper cure thereof.

Wine moderately tempered with water according to the custome of the sick patient, is good and profitable in all causes of this Fever, except he be pains in his head, or that the Fever drew its original from anger, or a Bub; for in this last case especially, the Patient must abate wholly from wine, untill the inflammation come to the state, and begins to decline. This kind of Fever often troubles infants, and then you must preferre such medicines to their Natures, as if they were sick, that to by this means their milke may become medicable. Also it will be good to put the Infant himself into a bath of natural and warme water, and prefently after the bath to anoint the ridge of the backe and breast with oile of Violets. But if a Plegemon possess any inward part, or otherwise by its nature be great, or feared near any principall Bowell, to that it may continually feed from it either a puritid matter or exhalation to the heart, and not only affect it by a quality or particular heat of the parts, hence will arise the Putrid Synechus; if the blood by contagion putrefying in the greater vesseills, consists of an equal mixture of the foure humors. This Fever is chiefly thus knowne, it hath no exacerbations, or remissions, but much lese intermissions; it is extended beyond the space of twenty foure hours, neither doth it then end in vomits, sweate, moisture, or by hitt and little by insensible transpiration, after the manner of intermitting Fevers, or Agues; but remains constant, untill it leaves the Patient for altogether; it commonly happens not unlesse to thefe of a good temper and complexion, which abound with much blood, and that tempered by an equal mixture of the foure humors. It commonly endures not long, because the blood by power of some peculiar putrefaction degenerating into choler or Melancholy, will presently bring forth another kind of fever, to wit, a Tertian or continued Quaraine.

The cure of this Fever (as I have heard of most learned Physicke) chiefly consisted in Bloodletting. For by letting of blood the fulneffe is diminished, & therefore the obstruction is taken away, and lastly the putrefaction, and seeing that in this kind of Fever.
Of Tumors against Nature in General.

Of Fever there is not only a fault of the matter, but also the heat is too excessive, or certain Phlebotomy helps not, as we said, the purreflation of the blood, but also the hot temper. For the blood in which the heart is contained, while it is taken way, the acid and sulfurous excrements exhale and vanish away with it, which kept in, encraves the Feverish heat. Moreover, the veins, to them empysematous, which nature abhors, are filled with much cold air in stead of the hot blood which was drawn away, which follows a cooling of the habit of the whole body; yes and many by means of Phlebotomy have their bellies loofe'd, and sweate, both which are much to be decried in this kind of Fever.

This moved the ancient Physitrons, to write, that we must draw blood in this discafe, even to the fainting of the Patient.

Yet because thus, nor a few have pourd out their lives together with their blood, it will be better and safer to divide the evacuations, and draw so much blood at several times, as the greatneffe of the diseafle shall require, and the strength of the Patient may beeare.

When you have drawn blood, forthwith inject an emollient and refrigerative Clyftcr; lest that the veins emptied by Phlebotomy may draw into them the impurity of the Guts; but these clyfters which coole too much, rather bindeth the belly, than loofe it. The following day the Mortisfike matter must be partly evacuated by a gentle purge, as a bole of Fod, or Catholic, or then must you appoint Syrups which have not only a refrigerative quality, but also to restit Phlebotomy, such as the Syruppe of Lemmons, Berberies, of the Injece of Citrons, of Pomegranats, Sorrell and Vineger; let his diet be absolutely cooling and humecting and also flender, for the nativer heat much debilitated by drawing of a great quantity of blood cannot equal a full diet. Therefore it shall suffice to feed the Patient with chicken and veale brothes made with cooling herbs, as Sorrell, Lettuce and Pursline. Let his drinke be Barly water, Syrup of Violets mixed with some pretty quantity of boiled water, or ale. But the Physitron must chiefly have regard to the fourth day, for if then there appears any signes of concoction in the excrements, the clyftcr must be expected on the seventh day and that either by a looseneffe of the belly, or an abundance of urine, by vomits, sweats, or bleeding. Therefore we must then doo nothing, but commit the whole business to nature.

But for drinking cold water, which is so much commended by Galen in this kind of Fever, it is not to be suffered before there appear signes of concoction; moreover in the declining of the diseafle the use of wine will not be unprofitable to help forwards sweats.

Chap. XII.
Of an Erypselas, or inflammation.

Having declared the cure of a Phlegmon, caused by laudable blood, we must now treat of these tumors which acknowledge Choler the material cause of their generation, by reason of that affinity which intercedes between Choler and Blood. Therefore the tumors caused by natural Choler, are called Erypselas, or inflammations, these contain a great heat in them, and chiefly possesse the skin, as also oftentimes some portion of the flesh lying under it. For they are made by certain and subtle blood (which upon any occasion of inflammation easily becomes cholerick) or by blood and cholcr, hotter than is requisite, and oftentimes of choler mixed with an acride ferous humor.

That which is made by sincere and pure choler, is called by Galen, a true and perfect Erypselas. But there are three differences of Erypselas by the admixture of choler with the three other kinds of humors. For if it be predominant being mixed with blood, it shall be termed Erypselas Phlegmonades; if with phlegme, Erypselas ademnades; if with Melancholy, Erypselas Sierrhodes. So that the former and
and substantive word (fliewes the humor bearing dominion, but the latter or adjective that which is inferior in mixture. But if they concur in equal quantity, there will be thereupon made Erythias Phlegmones; Erythias edema; Erythias febrish. 

Galen acknowledges two kinds of Erythias, one simple and without an ulcer, the other ulcerated. For Choler drawne and fevered from the warmneffe of the blood, running by its subtilty and acrimony into the skin, ulcerates it; but restrains by the gentle heat of the blood, as a bridle, it is hindred from Pierceing to the top of the skin, and makes a tumor without an ulcer. But of unnaturall choler are caused many other kinds of cholericke tumors, as the Herpes excedent, and Miliaris, and lastly all sorts of tumors which come betweene the Herpes and Cancer. You may know Erythias chiefly by these signes, as by their colour, which is a yellowish red, by their quickie sliding backe into the body at the leaf comprence of the skin (the cause of which is the subtilty of the humor and the outward fire of it under the skin, whereupon by some an Erythias is called a Difeafe of the skin) lastly by the number of the Symptoms, as heat, pulsation, paine. The heat of an Erythias is far greater then that of a Phlegmon, but the pulsation is much lesse; for as the heat of the blood is not so great, as that of cholere, so it farre excedes choler in quantity and thicknesse, which may cause comprence and obstruction of the adjacent muffle.

For Choler easily dissipable by reason of its subtilty quickly vanishes, neither doth it suffer it selfe to be long contained in the empty spaces betwene the muffle; neither doth an Erythias agree with a Phlegmon in the propriety of the paine. For that of an Erythias is prickling and biting without paine, or heavinesse, yet the primitive, antecedent and conjunct causes are alike of both the tumors. Although an Erythias may be incident to all parts, yet principally it affails the face, by reason of the rarity of the skin of that place, and the lychenese of the cholericke humor, flying upwards. It is ill when an Erythias comes upon a wound, or ulcer, and although it may come to suppuration, yet is it not good; for it shewes that there is obstruction by the admixture of a groffe humor, whence there is some danger of erition in the parts next under the skin.

It is good when an Erythias comes from within outwards, but ill when from without it retires inward. But if an Erythias posseff the wome it is deadly, and in like manner if it spread too far over the face, by reason of the sympathie of the membrae of the braine.

Chap. XIII.

Of the cure of an Erythias.

The cure of an Erythias we must procure two things, to wit, evacuation and Refrigeration. But because there is more need of cooling, than in a Phlegmon, the chiefest scope must be for Refrigeration. Which being done, the contained matter must be taken away and evacuated with moderately revolting medicines. We must doe foure things to attaine unto these forementioned ends. First of all we must appoint a convenient manner of Diet, in the use of the five things not natural; that is, we must increatae, refrigerate and moisten as much as the nature of the disease and patient will suffer, much more than in a Phlegmon; then we will evacuate the Antecedent matter, by opening a veine, and by medicines purging choler. And that by cutting the Cephalicke veine, if there be a portion of the blood mixed with Choler, if the Erythias posseffe the face, and if it be spread much over it.

But if it shall invade another part, although it shall proceed of pure choler, Phlebotomy will not be so necessary, because the blood which is as a bridle to the choler being taken away, there may be danger, lest it become more fierce; yet if the body be plethoricke, it will be expedient to let blood, because this, as Galen testeth, is oft times the cause of an Erythias. It will be expedient to give a clyster of refrigerating and humecting things before you open a veine; but it belongs to a learned and prudent
prudent Phyfition to prefcribe medicines, purging cholcer.

The third care must be taken for Toptick, or local medicines, which in the beginning and encreafe must be cold and moist, without any either drynes or afficion, because the more acrid matter by ufe of altringent things being driven in, would ulcerate and fret the adjacent particle.

Galen and Avicen much commend this kind of remedy, Take faire water \( \frac{3}{4} \) j. of the sharpest Vinegar \( \frac{3}{4} \), make an Oxycrate, in which you may wet linen clothes and apply to the affected part and the circumjacent places, & renew them often. Or Re. Succifoli, plantag. & Semperuvi, an. \( \frac{3}{4} \), aceti \( \frac{3}{4} \), Maucagemid. \( \frac{1}{2} \) j. j. Succifoli, & an. \( \frac{3}{4} \) j. But if the Eryspelas be upon the face, you must ufe the medicine following.

R. Vincuent. Ref. \( \frac{3}{4} \), j. j. Succifoli, & Semperuvi, an. \( \frac{3}{4} \), trochife, de Campbora \( \frac{3}{4} \), an. \( \frac{3}{4} \), &c. Let them be mixed together and make a laimment. But if the heat and paine be intolerable, we must come to narcotick medicines. As, Re. Succifoli, &c. Solani, cicuta, &c. J. j. album, currum mii, aceti \( \frac{3}{4} \), &c. C. &c. &c. Maucagemid. j. j. &c. & c. \( \frac{1}{2} \) j. of warm water, addendo ung. refrigerantis gal. Campbor. \( \frac{3}{4} \), j. j. j. Yet we must not ufe such like medicines too long, left they cause an extittion of the native heat and mortification of the part.

Wherefore such Narcotick medicines must be ufed with regard of place, time and fuch other circumstances. Therefore we may three manner of wayes understand when to deftirt from ufg Narcotick or pupeafeactive medicines. The first is when the Patient in the affected part feels not fo much heat, pricking and paine, as before; The second is when the parfe feels more gentle to the touch than before; The third when the fiery and pallid colour begins by little and little to waxe livid and blacke; for then must we abstaine from Narcotick, and ufe refolving and refrehening things, whereby the part may be revived and refrehened by recalling the Native heat. As, Re. Farina hordei & Orai, an. \( \frac{3}{4} \), j. j. Farina fem. lini \( \frac{1}{2} \), coquantur in Hydromelis vel oxycrate, addendo Palo, refarum & chamam, an. \( \frac{3}{4} \), j. j. animi & chomam, an. \( \frac{3}{4} \), j. j. est eratplama. Or you may ufe this following fomentation R. Rad. aleoica \( \frac{3}{4} \), j. j. Solana, bismal, persic. athinthus, Afevia, an. \( \frac{3}{4} \), j. j. chamam, melis, refer. rubi, an. \( \frac{3}{4} \), j. j. coquantur in aqua partibus vini & aqua, & c. j. j. est eratplama. After the fomentation you may ufe an Empliaffer of Distichen Prolatum, or Diapalma dissolved in oile of chamomile and Melilot, and fuch other like. The fourth Intention which is of the correception of accidents, we will perfom by these meanes which we mentioned in curing a Phlegmen, by varying the medicaments, according to the judgement of him which undertakes the cure.

Chap. XIII.

Of the Herpes that is Tenters, or Ringwormes, or fuch like.

What a Herpes is, where be the kindes three of.

Colz. C "Chamomem. What the Herpes moatly is. What the cure doth.

Three intents concerning Herpes.

Herpes is a tumour caused by pure cholcer separated from the rest of the humors, that is carried by its naturall lightneffe and tenuitie even to the outer or fcarce skin, and is diffufed over the surface thereof. Galen makes three farts of this tumour. For if perfect cholcer of an indifferent substance, that is, not very thicke, cause this tumour, then the fimple Herpes is generated, obtaining the name of the Genus; but if the humor be not fo thin, but compounded with fome small mixture of Phlegme, it will raise little blisters over the skin like to the feeds of Millet, whence it was that the Ancients called this Tumor the Herpes Melittis. But if it have any admixture of Melancholy, it will be an Herpes oxcedens, terrible by reafon of the erosion or eating into the skin and mufcles lying under it.

There are absolutely three intentions of curing; The fift is to appoint a Diet juft like that we mentioned in the cure of an Eryspelas; The fecond is to evacuate the antecedent caufe, by medicines purging the peccant humor, for which purpole oftentimes
times clients will suffice, especially if the patient be somewhat eafe by nature, and if the urine flow according to your desire for by this a great part of the humor may be carried into the bladder, the third shall be to take away the conglomeration by local medicines ordained for the swelling and ulcer. Therefore the Chirurgian shall have regard to twofold things: that is, the resolving of the tumor, and the drying up of the ulcer, for every ulcer requires drying, which can never be attained unto, unless the swelling be taken away. Therefore because the chiefeft care must be to take away the Tumor, which unless it be performed there can be no hope to heal the ulcer, he shall lay this kind of medicine to dissolve and dry, as R. Erythrae & stibidi prepar. an. 3, et. refs. & adips. expon. an. 3, cortsicon pin us, & lat. 3 cor a quantum satis, fuit ungentum. Or R. Furin, hord. & lent. an. 3, coquantur in dcocto cortisici mali granati, balast. plantig. addendo pulv. eras. rub. absinth. an. 3, olei Myrtillor. & melis com. an. 5, fuit unguentum, ut artis eff. But for an Herpes Miliaris thefe must chiefly be used, R. pulv. gallatun, miltorv. balast. boharmeni an. 3, squar. 3, juci aererini 3, axun. gr a. aerer. & olei Myrtillor. an. 3, serberinb. 3, fuit unguentum ad ousum. I have often found most certain help in unguentum compositum cum Mercurio, for it kills the putresces, and partly walls the humor contained in them. Yet if the ulcer, not yet yeelds, but every day diffuses itself further and further, you shall touch the edges and lips thereof with some acride medicine, as Aqua sors. cyle of Vitrioles or such like, for by this kind of remedy, I have oft times healed fretting ulcers which seemed altogether incurable.

Chap. XV.

Of Fevers, which happen upon Erysipelas Tumors.

Fevers sometimes happen upon Inflammations, and Erysipelas, which favour of the humor whereas they proceed, that is, Choler. Therefore seeing it is peculiar to Choler, to move every third day, it is no marvel if great Inflammations bring with them Tertian Feavers, or Agues, which have their fit every third day, for it is called an Intermitting Tertian which comes every other day.

The Primitive causes in generall are strong exercises, especially in the hot Sunne, the use of heating, and drying either meats or medicines, great abstinence joyned with great labour, care, forrow; the antecedent causes are the plenty of choler in the body, an hot and dry distemperature either of the whole body, or of the liver onely; the conjunct cause is the potreftion of the Cholerick humor lying in some plenty without the greater veeells, in the habit of the body.

The signes, a shaking or shivering like as when we have made water in a cold winter morning, a great pricking, stretching, or thynne, as if there were pins thrust into us over all our bodies, by reason of the acrimony of the cholerick humor driven uncertainly & violently over all the body, & the feable membranous & Nervous particelles at the beginning of the fit, then presently the heart becomes acrid, the Feaver kindles like a fire in dry straw, the pulse is great, quick, and equal, the tongue dry, the urine yellow, red and thin. The Symptomes are watchings, thirst, talking idly, anger, discontente & offing the body at the leeff, noise or whispering. These Feavers are terminated by great feares. They are incident to cholerick young men, such as are lean, & in Summers, after the fit oft times follow cholerick vomiting & yellowish fooles. After the fit there followes an absolute intermission retaining no reliques of the Feaver, until the approach of the following fit, because all the cholerick matter by the force of the fit & nature is easily cast out of the body, by reason of its natural levity & facility, whereas in Quotidian there is no such thing, as which after the fit alwaies leave in the body a feeme & feeling of a certaine inequality by reason of the fubornenesse of the Philogenetic humor, & doliene to motion. The fit commonly uses to endure 4,5, or 6 hours, although at somet ime it may be extended to 8 or 10. This Feaver is ended at 7 fits, and usually is not dangerous, unless there be some error committed by the Physicion. Patient or such as attend him, Tertians in summer are shorter, in winter longer.

Wherefore the beginning of the fit is accompanied with doliene, or stretching,
the flate with sweat, whereupon if the note, lips or mouth break forth into pimples or scabbes, it is a signe of the end of the Fever, and of the power of nature which is able to drive the complex cause of the diseafe from the center to the habite of the body; yet these pimples appear not in the declining of all Tertians, but onely then, when the Cholerick humor caufing the Fever shall refide in the stomacke, or is driven thither from some other part of the first region of the Liver. For hence the fublerb portion thereof carried by the continuation of the inner coate to the mouth and note, by its acrimony easilly caufes pimples in these places. The cure is performed by Diet, and Pharmacy.

Therefore let the Diet be so ordered for the fixe things not naturall, that it may incline to refrigeration and humection, as much as the digestive faculty will permit, as Lettuce, Sorrel, Gourds, Cowcumberes, Mallowes, Barly Creames, Wine much alaid with water, thinne, small, and that sparingly and not before signes of concocition fhall appear in the urine; for at the beginning he may not use wine, nor in the declining, but with these conditions, which we have preferred.

But for the time of feeding the patient, on that day the fit is expected, hee must eate nothing for three hours before the fit, left the aguish heat lighting on such meats as yet crude, may corrupt and putrefie them; whence the matter of the Fever may be increased (because it is as proper to that heat to corrupt all things, as to the native to preserve and vindiicate from putrefaction), the fit lengthened, and nature called away from the concocition and excretion of the Morbificke humor; yet wee may temper the fervency of this law by having regard to the strength of the patient; for it will be convenient to feed a weak patient not onely before the fit, but also in the fit itself, but that onely sparingly, lest the strength be too much impaired.

Now for Pharmacy; It must be considered, whether the strength of the Patient be sufficient, if the humors abound; for then you may preferibe Diapharnath simplicis, Caffia newly extracted, the decoction of Violets, of Citrine Myrobalanes, Syrupes of Violets, Rofes, of Pomegranats and Vineger. But if the powers of the Patient languifh, hee must not onely not be purged, but alfo must not draw blood too plentifully, because Cholerick men foone famt, by reason of the faile and eaiied diisipation of the subtle humors and spirits; besides, fuch as are subject to tertiann Feveres do not commonly abound with blood, unleffe it be with Choliecke blood, which much rather be refuced, or amended by cooling and humecting things, than evacuated. Yea verily, when it is both commodious and necery to evacuate the body, it may be attempted with far more safety by fuch things as worke by inſenſible tranfpiration, which provoke sweats, vomite or urin by reafon of the fubtility of the Cholerick humor, than by any other. Alfo the frequente use of emollient glyfteres made with a decoction of Prunes, juibubes, Violets, branne and Barly, will profit much; If the patient fall into a Delirium or takle idely by reafon of the heat and drynes of the head, with a particular exceffe of the Cholerick humor, the head must be cooled by applying to the Temples and forehead and putting into the nose oyle of Violets, Rofes, or womans milke. Let the fete and legs be bathed in faire and warme water, and the foles of the feet be anoynted with oyle of Violes and fuch like.

In the declining, a Bath made of the branches of Vines, the leaves of Willowes, Lettuce and other refrigerating things boiled in faire water, may be profitably used three hours after meat eaten sparingly.

But I would have you to underſtand the Declination or declining not of one particular fit, but of the difeafe in generall, that the humors already concocted, alſed to the skin by the warmneſſe of the bath, may more easilly and readily breathe for the which other wise or daimes a bath at the beginning of the difeafe, will caufe a conſipuation in the skin and habite of the body, by drawing thither the humors peradventure rough and groffe, no evacuation going before.

Alfo it will be good after generall purgations to caufe sweate by drinking White wine thinne and well tempered with water; but urin by a decoction of Smallage and Dill; Certainly sweate is very laudable in every putride Fever.
Chap. XVI.

Itherto wee have treated of hote Tumors, now wee must speake of cold; Cold Tumors are onely two, an Oedema, and a Scurrhus. And for all that Hippocrates and the Ancients used the word Oedema for all sorts of Tumors in generall; yet by Galen and these Phyfitions which succeeded him, it hath beene drawne from that large and generall signification, to a more straite and speciall, onely to designe a certaine species, or kind of Tumor.

Wherefore an Oedema is a soft, laxe and painlesse Tumor, caused by collection of a Phlegmatike humor.

The Ancients made eight differences of Tumors proceeding of Phlegme. The first they termed a true and lawfull Oedema proceeding from naturall Phlegme, from unnaturl Phlegme by admixtion of another humor they would have three forts of Tumors to arise, as that by mixture of blood, should be made an Oedema Phlegmaticus, and so of the rest.

Besides, when they perceived unnaturl Phlegme either puffed up by flatulence, or to flow with a wateritf moisture, they called some Oedemas flatulent, others wateritf; but alfo when they saw this phlegme often to turne into a certaine Phlegma-like substance, they thought that hence proceeded another kind of Oedema, which they expresled one while by the name of Atberoma, another while by Scurrhus, and sometime by Melierides, as lastly they called that kind of Oedema which is caused by putride and corrupt Phlegme, Serphula; For we must obserue that Phlegme sometimes is naturall, and offends onely in quantity, whence the true Oedema proceeds; and at otherwiles it is not naturall, and it becomes not naturall, either by admixtion of a strange substanse, as blood, Cholee or Melancholy, whence arise the three kinds of Oedema's; one by the way of Oedema Phlegmaticus, and two by resolution, whence kernels and all kinds of Wens, Ganglia and knoxes, or by resolution, whence all flatulent and wateritf Tumors, as the Hydrocele, Pneumatocele and all kinds of Dropties.

The causes of all Oedema's are the defection of a Phlegmaticke or flatulent humor.

Feaver, because it evacuates the conjunct matter of the diseafe, but chiefly in a Tertian, by reason that choler by its inbred levity eaftly takes that way, and by its flatulity is eaftily resolved into sweat. But that the sweare may be laudable, it is fit it be upon a criticall day, and be forthewed by signes of concordion agreeable to the time and manner of the diseafe. Sweats when as they flow more slowly are forwarded by things taken inwardly and applied outwardly, and things taken inwardly, as with white wine, with a decoction of Figgis, Raisons stoned, grasse roots and the like opening things; but by things outwardly applied, as spunges dipped in a decoction of hot herbes (as Rosmary, Time, Lavender, Marjorome and the like) applied to the Groines, Armholes, and ridge of the backe.

You may for the same purpofe, fill two Swines bladders with the fame decoction, or elle fome bottles, and put them to the feere, fides, and betweene the thighs. Then let this be the bound of sweating, when the patient begins to waxe cold, that is, when the sweare feeth no more hot, but cold.

But by the consent of all, blood must not be letten after the third fit, but presently at the beginning of the Feaver, according to the opinion and prescription of Galen; for feaing this Feaver for the most part is terminated at feven fits, if you stay untill the third fit be paff, the Feaver will now be come to its flate; but Hippocrates forbade us to move any thing in the flate, lest nature then buftied in concodion the diseafe, be called from its begun enterprife.

Chap. XVII.

Of Tumors against Nature in Generall.

Of an Oedema or Cold Phlegmaticke Tumor.

...
humor into any part, or the congestion of the same made by little & little in any part, by reason of the imbecility thereof in concealing the nourishment, and expelling the excrement.

The signes are a colour whitish and like unto the skinne, a soft Tumor, rare and laxe by reason of the plentiful moisture with which it abounds, and without paine, by reason this humor infers no sense of heat nor manifest cold; when you preffe it with your finger the print thereof remains, because of the groffeness of the humor and downesse to motion. Oedema’s breed rather in winter than in the summer, because winter is fitter to beape up Phlegme; they chiefly posfesse the Nervous and Glundulous parts, because they are bloodliffe, and so cold and more fit by reason of their loofeness to receive a defluxion, for the fame cause bodies full of ill humors, ancient, and not exercifed, are chiefly troubled with this kinde of Tumor.

An Oedema is terminated sometimtes by reolution, but oftner by concretion, which is seldom by fuppuration, by reason of the small quantity of heat in that humor.

The general cure is placed in two things, that is, in evacuation of the conjunct matter, prohibiting the generation of the antecedent. Wee atteaine to both chiefly by four means.

The first truly by ordaining a fit manner of living and prescribing moderation in the ufe of the fixe things not natural. Wherefore we must make choife of such aire as is short, dry and subtle; wee must prescribe wine of a middle natura for his drinke; let the bread be well baked; let meates be appointed which may generate good blood, and thefe rather rofted than boyled. Let all fruiues be forbidden, as also brothes and milke-meates; let him eate such fift as are taken in lofty rivers; the Patient shall obferve medioctiy in feeding, but principally fobriety in drinking, for fear of crudities; After meat let him ufe digfifive powders, or common drie powders; if his belly be not naturally loofe let it be made fo by arte.

Let the Patient ufe exercife before meate, so by little and little to fpend this humor, and reforte the native heat. Let him flyepe little, because much fleep breeth cold humors; let him avoyde griefe and fadnefe. And if he be of a weak body, let him abfteine from venery, left by another weakening by the ufe of venery added to his prefent infirmity, he fall into an uncureable cold

For Galen in the beginning and encreafe preferibeth a fomentation of Oxycratnum used with a fpunge. But iffo be that the Oedema be upon the Arme or Leg, a repelling rowler is very good, that is, fuch an one as is brought from below upwards. So these medicines following are very fit for the fame purpofe.

For Galen in the beginning and encreafe preferibeth a fomentation of Oxycratnum used with a fpunge. But iffo be that the Oedema be upon the Arme or Leg, a repelling rowler is very good, that is, fuch an one as is brought from below upwards. So these medicines following are very fit for the fame purpofe.

For Gales in the beginning and encreafe preferibeth a fomentation of Oxycratnum used with a fpunge. But iffo be that the Oedema be upon the Arme or Leg, a repelling rowler is very good, that is, fuch an one as is brought from below upwards. So these medicines following are very fit for the fame purpofe.
ufl drying and resolving medicines, as R. *Nutmum* cupressei, granat. *Semele*.


Lastly, you may here with good success ufe resolving emplasters and ointments, first heating or chafing the part by friction or fomentations aftermoist as dry, otherwise emplasters will fearely doe their duty, by reason of the great coldneffe of the part, being not sufficient of it felle to affimulate the nourishment, or to expell the superfitious and unprofitable humor. Let a fomentation be made with white wine in which *Sage*, *Rofmary*, *Time*, *Lavand*er, *Chamomile* and *Melilot* flowers, red *Rofes*, *Orris* roots, *Stocho* and fuch like have beene boyled with a little Vineger added thercunto. Quench hot briches in the fame decoction, and apply them wrapped in linnen clothes to the affected part, for so a vapour will breathe forth which hath an attenuating, pearcing, resolving and strengheening faculty. But you may in head of the briches fitly apply Hoggs or Oxen bladders, filled halefull with the forfaid decoction, and that hot. The fridions must be made with hot linnen clothes, for fo the native heat together with the blood and spirits is recalled to the part, and filiginous humors contained under the skinne are resolved, whereby the strength of the part is in some fort recovered.

**Chap. X VII.**

Of the care of flatulent and waterish Tumors.

Formerly declared that not only flatulent and waterish Tumors were comprehended under this word *Oedema*, but alfo fuch as are bred of congealed Phlegme, as *Atheromata*, *Steeatomata* and *Mellecides*. Flatulent or windy Tumors are caufed by vapour and winde kept in or contained sometimes under the skinne, somewhiles under the membranes, as the *Perigium* and *pericranium*, whereupon enfues cruel torment by reafon of the diftention of these parts which are ended with moft exquisite fense. Sometimes the *Entraile* as the * stomacke* and *Guts* are swollen and flretched out with winde, as in a *Tympany*.

They in this differ from a true and legitimate *Oedema*, that when you lay your finger upon them and take it off againe, there remains no signe of the prrefure thereof, because they are diftinct by vapour and not by humor, for the vapour being preffed returnes speedily againe, as you may perceiue by balles or bladders filled with winde.

The caufe of fuch Tumors is the weakeneffe of the native heat, not being able eaily to refo1ve and waife the Phlegme by which the windy Tumors are raifed, for to the morning Sunne (which in fome fort refembles our native heat) cannot refole the mifts difperfed in the aire, which at noone it eaily refolves into pure aire. Almost after the fame manner our weaker heat firs up vapours from that flegme it could not diffolufe, which vapours are the mateffe of inflations, or dwellings. But oftentimes although the native heat be sufficiently powerfull, yet because the humor lyeth deep, or is kept in by the thickneffe of fome membrane, tendon or Li-gament, the flirred up vapour cannot exhale, whereby it comes to paffe, that created by little and little it caueth a Tumor.

The signes of fuch a Tumor are a certaine remittency or refiitance perceiued by prifling it with your finger, and sometimces a noife as if you fiuit upon a drum,
especially if much wind be contained therein, such as it often gathered together in the hollowness of the belly, and in the spaces between the largest muscles. The Tumor is neither red nor hot, but rather cold and white as in an Oedema, it often pothereth the joints, and especially the knees, and it is very difficult to be resolved. If such flatulency be gathered together in the Guts, it causeth the wind Colicke, in which sometimes the distention is so great, that death ensues by reason of the renting or tearing the coats of the Guts.

The signs of a waterish Tumor.

The signes of a waterish Tumor

Eating.

 Things strengthening the parts.

Medicines evacuating the conjunct matter.

Gelatin fomentation.

Conservation

thinge medicine.

The humor and flatulency which were kept shut up in the part being resolved, the part must be strengthened, left now and then it receive or generate the like matter: That may be done by the following fomentation and cataplasm: R. Nuxum cupriffi, cornicum granat, samach, berberis, halcafl. an. 3i, canis aguuin. arnigluis. supsi barb. absinth, salvia, sorbus, levandul. an. d. in. fl. flor. chamam, melil. rofar. antios, an. p. 3. alun. fals com. an. 3i, buliant ommia in aquis partiwm aqua fabrum & vini absyli, make bagges for a fomentation, or use the decoction for the same purpose with a sponge. R. Farina fab. hordei & lupin, an. 3i, terribili. com. 3i, pulvere rededit eos, melil. an. 3i, melils com. 3i, of the forefaid decoction as much as shall suffice, so to make a cataplasm to the forme of a poultice liquid enough, let it be applied hot to the affected part having used the fomentation before.

The signes of a waterish tumor are the same as of a flatulent; but over and besides it thines, and at the pressing with your fingers, there is hard a noyse or murmur as of a bladder half filled with water.

Therefore
Therefore the waterish tumor if it shall not yeeld to the forementioned resolving medicines, the way must be opened with an incision knife, after the same manner, as we mentioned in a Phlegmon. For often times this kind of remedy must be necessarily used, not only by reason of the continuance of the humor which gives no place to the resolving medicines, but also because it is shut up in its proper cyst or bagge, the thicknesse of which frustrates the force of the resolving medicines, neither sufferers it to penetrate into the humor. As I some years agoe found by experience in a maide of 7, yeares old, which troubled with a Hydrops, or waterish rupture, to whom when I had rashly applied to dissolve it resolving medicines of all sorts, at length I was forced to open it with my knife; not only to evacuate the contained matter, but also that I might pluck out the bagge, which unlesse it were cut up by the roore, would be a meane to cause a relapse. John Alme, doctor of Physicke called me to this business, James Gaito, the Kinges Chirurgeon overaw the cure.

Chap. XIX.

Of an Atheroma, Steatoma, and Melicteris:

Although these Tumors may be thought comprehended under one genus with their Oedematous Tumors, yet they differ as thus; that is, their matter is shut up in its bladder or bagge, as it were in a peculiar cell. But their difference amongst themselves is thus: the matter of the Steatoma as the same signifies, is like unto Tallow, for so in Greek signifies Tallow, or feam. Yet it inf times is found filled with other divers hard bodies, stone, bony, or callous, like unto the claws of an hen. For Philoæmus reports that he sometimes saw flyes in a Steatoma at the opening thereof, and such other like things wholly differing from the common matter of Tumors. The matter contained in an Atheroma is like to pappe, with which they feede little Children. A Melicteris contains matter resembling honey in colour and consistence; the Tumors appeare and rise without any inflammation going before them. Thus you shall know these Tumors; Steatoma is harder than the other two; neither yeelds it to the pressure of your finger, but when it once yeelds, it doth not speedily and easily returnes to its former figure, because the matter is more greasy; Iris of the same colours as the skin, without paine, and of a longish figure. The Melicteris yeelds to the touch, as being a loose and soft body, and as it is easily diposited and diffus'd, so it quickly returnes to its former place and Tumor. It differes from the Atheroma in figure and substance. For it is more gobous and of a futiler and more thining matter, besides also it takes up a large space, and is more obsequious to the touch, and for the roe; without paine. As for the manual operation of the Chirurgeon in their cure, it feemes to be of no great consequence of what sort the matter is, whether resembling tallow, honey, or pappe; for there is one simple manner of operation, which is, that you plucke away the contained humor, as also the receptacle in which it is contain. Yet you must noe Tumors, sometimes as it were hanging in the surface of the skin, are easie to be moved this way and that way, but other some againe deeper fatted firmly cohere with the adjacente bodies, and these require an exquisite hand and alfo Industry for fear of a great flux of blood and convulsion by cutting a veine. There are many other kinds of Tumors, as the Tumours, or Mole, the Nasa, the Glasse, the Warty, the Nodus, the Lumpis, which as in matter (for they are all of a thick, clammy and fìcous Phlegmatic humor) so in kindes they agree with an Atheroma, Steatoma and Melicteris. But alfo in them for the mott part, when they are opened, you may see bodies of all sorts farre different from the common matter of Tumors, as flones, chalke, sande, coales, flails, thawes, or awnes of Corne, hey, horse, hares, feth both hard and spongious, gristle, bones, whole creatures as well living as dead.

What the cause may be, that was sometimes found inflate in their Tumors.
Of Tumors against Nature in General.

Of the whole great world, hath made man the Microcosme or little world, that he might be, as it were, the lively Image of that greater world; so in him, it being never idle in us, would have all the kindes of all motions and actions to shew themselves, as long as matter for generation is not wanting. But because there is little, or rather no mention of these tumors amongst the ancients, we will briefly shew the opinions of the later Writers concerning them.

Now they say, the Tefliade is a tumor contrary to nature, soft, diffused, or vaulted, or arched like a Tortoise; sometimes it arises in the head in forme of a Mole, and then it is called a Mole.

The Naja is a great and flethy tumor, not in shape unlike a Melon, or rather the fefli of a mans buttockes, whence it may feme to have had the name, unleffe wee had rather fay it had it, because it more usuallly breeds upon the buttockes, than upon any other part of the body.

The Glandula takes its denomination from an Acorn, called Glaucus in Latine, the which it somewhat resembles in the compasse and forme of the tumor; or else because it most commonly breeds in the Glandules, or Eumacories of mans body.

The Nodus or knot, is a round tumor, hard and immoveable, named from a rope tied on a knot.

Guido Cantuscens affirms knots commonly to grow in nervous bodies, but at this time they more usuallly arise on the bones of such as have the French disease.

Chap. XX.

Of the cure of Lupias, that is, Wens, or Ganglions.

What a Glan-
dule is.

Wen or Ganglion is a tumor sometimes hard, sometimes soft, yet always round, usin to breed in dry, hard, and nervous parts. And seeing that some of the tumors mentioned before in the former Chapter, flicke immoveable to the part to which they grow, because they are contained in no cyle, or bag, otherwise are moved up and down by the touch of your fingers, because they are contained in a bag or bladder, it commonly comes to passe that Wens have their bladder wherein to contain them, and therefore we think it, the rather more freely, and particularly to treat of their cure, because they are more difficultly cured, especially where they are inverteate and of long standing.

The primitiue causes of these are dull blows, fallings from high places, straines, and other such like occasions. But the antecedent and conjunct causes are the same with those of an Atheroma, Melitersis, and Sceatoma.

The description formerly set downe, will furnish you with the signes by which you may know when they are present; certainly from very small beginnings they grow by little and little to a great bignesse, in the space of sixe or seven yeares, some of them yeld much to the touch, and almost all of them are without paine.

You may hinder such as are beginning and first growing, from encrease by some what a strong and frequent rubbing with your fingers. For to their bagge or bladder, together with the skine waxe thin, and the contained humor grows hot, is attenuated and resolved. But if so you nothing prevale, you must lie upon them with your whole hand, or a flatted piece of wood as heavy as you can, untill such time as the cyste or bagge be broken by your impression; then apply and strongly bind unto it a plate of lead, rubbed over with Quick-filver; for I have many times found by experience, that it hath a wonderfull force to resolve and waste the subject humor. But if the Wen be in such a place in which you can make no strong impression, as in the face, chest, belly, and throat, let there be applied an Emplaister which hath a resoluing, force, such as this following hath; R. gummi ammon. bals. galban. an. 31. Iiquescent in aceto, et trajiciumur per suffum, addendo olei librum. et laur. an. 33. ega. viti, parum, pulveri, ictes, pastor. ammon. furfur. viuir. vitriol. romani. an. 38. let them beall incorporated together, and make an Emplaister according to Art. But if the tumor
tumor cannot be thus resolved, it must be opened with a knife or cautery. And after the Ezech is removed, and the bagge wafted by Egyptianum, Mercury, and the like, the ulcer must be cleansed, repleniished with flesh, and cicatrizted.

Sometimes Wens grow so great a maife, that they cannot be cured by the deordered remedies, wherefore they must be taken away by the roote, by your hand and instrument, if be be that there be no danger by reason of their greatness, and so that they adhier not too closely to the adjacent parts, and if they be not too nigh to the greater veins and arteries; for it will be better in such a case to let them alone, This fal be your way to cut the off, or take them away. A final incision must be made even to the bladder, or bag, by which thrust in a probe of a fingers thickness, hollowed in the midst, round at the end, and as long as needle shall require; then draw it many times about between the skinne and the bagge, even to the roote of the Wen, that so the skinne may be devided long ways, then it will be requisite to make another incision overthwart, so that they may intererect each other like a crosse; then presently draw the skinne from the bladder, from the corners of the Wens, towards the roote, and that with your finger covered with a fine liemen cloath, or else with a Razor if neede require.

But you must observe that in a Wen there are alwayes certaine vessels, which are small at the begining, but much encresed in proesse of time, according to the encreas of the Wen, whereof they are not the rootes; wherefore if any Hemorragis or fluxe of blood happen, let it be stopped by binding the vessels at their heads and roots, or make a straight ligature at the roots of the Wen, with a piece of whiptord, or with a manytimes doubled thread, and let the ends hang forth until it fall away of its owne accord. Neither will it be sufficient to have cutaway all this tumor, but alfo it will be fit to cut away portion of the skynne, wherewith the tumor was covered, and onely to leave so much as shall suffice to cover the part, then with a needle and thred draw altogether the lips of the incision, but in the interim let tenns be put into the bottome of the ulcer untill it be perfectly cleeneved, and the rest of the cure be workedamike performed, even to the cicatrizing thereof.

The Chirurgion calleth and I using this method, in the presence of Master Do. Vit.-A.Hab., latin the Kings Physitian, tooke away a Wen from Martall Colard, the Major of Burbon; it hanged at his necke, as bigge as a mans head, and it weighed eight pounds; which made it to troublesome and burdenome to him, that he was forced to carry it bound up in a towell, as in a sears.

Verily if these kinds of tumors have a slender roote and broade top, they must be straitly tied and cut off. But it is very difficult and full of dangerous chance to take away such Wens as are seated in the necke, néeartunto the ligular veins, these under the armholes, in the groines, and such as are under the ham; by reason of the deadly force of such symptoms, as may thence arise. We can only conjecture, not certainly say what kind of matter may be contained in them. We can onely know of what sort it is, when by incision it is presented to our sight. Yet in suches are very hard and doe much resist the touch, there are often found matters, which in confirasm may be resembled to little stones, or pebles.

I being on a time called to open the body of a great Lady, found in one of her busts, a body which might euall the bignesse of a mans egge, hard, and compact like a rough peble; it was held, whilst the lived, both by the Physitians and Chirurgions to be a Cancer, because this hardnesse was very painefull to her, when it was but gently pressed downe.

But alfo some few yeares agoe, I being called to the cure of a very honest woman, which was troubled with the same diseas, strongly withiflow the Physitians and Chirurgions affirming it to be a Cancer, for the tumor had taken no deeper roote, the habite of the part was not changed from the innate colour, the veins about it were not twollen, neither was there any other convincing figee of a Cancer. For this same woman had her courtes at their due and usuall time, and was well liking, and had a good colour in her face and body, was free from all fort of paine, unlesse when you pressed downe the part affected. Besides thenceforward the tumor grew not at all; so other evil accident betell her, yea verily she lives merrily, and well both in body and minde.
Of Tumors more particularly so called.

Chap. XXI.

What a Ganglione more particularly so called?

The cause.

Of a Ganglione more particularly so called.

Here are also certaine small tumors of the kinde of Lepid or Wens, which grow on diverse parts of the body, but chiefly on the wretches of the hands, and ankles of the feete, being called by a more particular name Ganglione; they appear on the top of the skine, neither doe they ever lie deep. The caufe of them is either the imbecilitie of a Nerve or Tendon got by wretching, extension, a blow, labour, or other such like caufe. Through which occasion the alimentary juice which flowed to these parts, seeing it can neither be concocted, nor assimilated into the proper substanee, is converted into an humor of the like nature cold, and grosse; which in continuance of time heaping it selfe up by little and little about the fibers, and the very substance of the tendon, concretes into a tumor.

It is not fit to use any iron instrument to these Ganglione which poiffe the tendons and joints, but only apply Ammoniacum and Calomelum dissolved in Vinegar and Aquavitae; as R. gymmii ammon. & Sagapuris in aqua-vite dissolutorum, &c. 2. coquans acupper cimeres calidos ad formam emplastis, sub sinem adde sulphuris auri subtiliter pulveris fasti. 3. fist empl. ad usum. Also the Emplaster of Vigo with double Mercury would be good for the same purpose.

The tumor soferned by these remedies, must be wrought, rubbed, or pressed, so long, until the bladder or bagge be broken under your fingers, which I have divers times done; then it will be expedient presently to apply and binde hard thereunto a plate of lead rubbed with Quicksilver, which may waste and consume the remainder of the tumor.

Sometimes there are Ganglione seen hanging by a small roote, as it were a string; wherefore they must be tied with a string at the roote, and every day twitched harder and harder, till such time as they fall off. The rest of the cure may be easily performed by the common rules of Art.

Chap. XXII.

Of the Strumae or Scrophulæ, that is, the Kings-Evil.

The Scrophula are oedematous tumors arising in the glandulous parts, as the breasts, armeholes, groines, but chiefly in the glandules of the neck.

They appeare either one or many, according to the quantity of that matter from whence they proceed, commonly contained in their proper cyste, or bagge, as Atheremies, Statomes, andメリセrides are.

They are made of a grosse, cold, vicise, and phlegmaticke matter with some admixture of malancholy. They differ from other glandulous tumors, first in number, for most usuallie there appeare many of them united together, springing from some what a deeper roote than glandulous tumors doe; some of them are moveable, other some woven with the neighbouring nerves, remaining unremovable.

Ganglione appeare fewer in number, and are without paine; but Scrophula oftentimes are painefull, especially when they waxe hot by putrefaction; so that sometimes they degenerate into cancerous ulcers, not to be touched by instruments, nor acide medicines.

Phlegmaticke, Melancholike, and glutonous persons, and such as are accustomed to feede on cold and moist nourishments, as fish and cold water, and leads a sedentary and idle life, are subject to the Scrophula. They are cured by a most slender diet, for so the native heat by want of nourishment turned upon the materiall cause of such like tumors, waft it.

And
And they are cured by purging of the superfluous humors, and also by application of emollient resolving, and suppurative topick medicines, after this following manner.

The ointment for the French disease, and the Emplastr of Pige with Mercury, are excellent for this purpose, especially if we continue for long, until the Patient come to Salivation, for to Nature will disburden it of all the humor, generating the Scrophula, which I have sometimes tried with happy success. R. Emplasturis dischiyli, alb. & mag. cerae aequi descriptum Philagry, & an. Terebinth. clarar, 3., olei liturum parum, fiat emplastrum fatti mole. But if the Scrophula cannot by this means be resolved, but as it oft times happens, tend to suppuration, you must use suppuratives, as R. rad. asb. & fiterum, an, 3., equatur in aqua commun. pijentur, &c. R. add. capitum alienorum sub cineribus collorum 3.ii. olei liturum, & ping. anferis & an. an. 3.6, farina seminis. lin quantum suffit, fiet cataplasm. Here we must admonish the Chirurgion, that he open not the Scrophula before all the contained humor be fully and perfectly turned into matter; otherwise the residue of the humor will remain crude, and will scarce in a long time be stiZiu brought to matter; for the humor, generating the Scrophula, and also sometimes in other abscesses, which come to suppuration.

For we must not as soon as any portion of the contained humors appears converted into pus or matter, procure and hasten the apertion. For that portion of the suppurated humor, causes the rest sooner to turn into pus, which you may observe in inanimate bodies. For fruits which begin to perish and rot, unless we presently cut away the putrifying part, the residue quickly becomes rotten; there's also another reason. The native heat is the efficient cause of suppuration, it therefore (the fore being opened) diminishes and weakened by reason of the dissipation of the spirits, evacuated together with the humor, will cause the remaining portion of the humor, not to suppurate, or that very hardly, and with much difficulty. Yet if the putrified part be subject, by its own nature, to corruption and putrefaction, as the fundament; if the contained matter be maligne, or critical, it will be farre better to hasten the apertion.

There is also another way of curing the Scrophula, which is performed by the hand. For such as are in the neck, and have no deep roots, by making incision through the skin, are pulled and cut away from these parts with which they were entangled. But in the performance of this work, wee take special care, that we do not violate or hurt with our instrument, the jugular veins, the steepy arteries, or recurrent nerves. If at any time there be danger of any great effluxe of blood, after they are plucked from the skin, they must be tied at their roots, by thrusting through a needle and thread, and then binding the said thread on both sides, that so bound they fall off by themselves by little and little without any danger. The remainder of the cure may be performed according to the common rules of Art.
compasstng us, the long use of cold meats and drinks, and of all such things as are
easily corrupted, as Summer fruites, crude fishes; and lastly, the omission of our ac-
cusomed exercise.

The antecedent causes are a great repletion of tumors, and these especially phleg-
matike. The conjunct cause, is phlegme purifying in the habite of the body, and
first region thereof without the greater veins.

The signes of this feaver are drawn from three things; as first natural; for this
feaver or Ague chiefly feazes upon thes where which are of a cold and moist tem-
per, as Old-men, Women, Children, Eunuches, because they have abundance of
phlegme; and it invades Old-men by its owne nature, because their native heat be-
ing weake, they cannot convert their meates, then taken in a small quantity, into lau-
dable bloud, and the substance of the parts. But it takes children by accident, not of
its felle, and the owne nature, for children are hot and moist; but by reason of their
voracity, or greedineffe, and their violent, inordinate, and continual motion after
their plentiful feeding, they heape up a great quantity of crude humors fit matter for
this feaver; whereby it comes to plaffe, that fat children are chiefly troubled with this
kinde of feaver, because they have the passages of their bodies fraite and flopped;
but because they are subject to Wormes, they are troubled with paine, by cor-
ruption of their meate; whence arifeth a hot dillexer by purrefaction, and the ele-
vation of putride vapours, by which the heart being molested, is easly taken by this
kinde of feaver.

From things not natural, the signes of this feaver are thus drawne. It chiefly
takes one in Winter, and the Spring, in a cold and moist Region, in a sedentary
and idle life, by the use of meates, not onely cold and moist, but also hot and dry, if
they be devoured in such plenty, that they overwhelm the owne heart.

For thus wine, although it be by facultie and nature, hot and dry, yet taken
too immoderately, it accumulates phlegmaticke humors, and causeth cold diseases.
Therefore drunkenness, glutony, crudity, baths, and exercises prefently after
meate, being they draw the meates as yet crude into the body and veins, and to con-
clude, all things causing much phlegme in us, may beget a Quotidian feaver. But
by things contrary to nature, because this feaver usually followes cold diseases, the
Center, Circumference, and Habit of the body being refrigerated.

The symptoms of this feaver are, the paine of the mouth of the stomacke, be-
cause that phlegme is commonly heaped up in this place, whence followes a vomi-
ting, or calling up of phlegme; the face looks pale, and the mouth is moist without
any thirst; often times in the fit it felle, because the stomacke flowing with phlegme,
the watery and thinner portion thereof continually flows up into the mouth and
tongue, by the continuance of the inner coate of the ventricle common to the gul-
ler and mouth.

It takes one with coldness of the extremite parts, a small and deepe puls, which
notwithstanding in the vigour of the fit, becomes more strong, great, full, and quicke.
Just after the same manner, as the heate of this feaver at the first touch appears
mild, gentle, moist, and vaporous; but at the length it is felt more acride, no other-
wise than fire kindled in Greene wood, which is small, weake, and smokie at the first;
but at the length when the moisture being overcome, doth no more hinder its aaction,
it burnes and flames freely.

The Patients are freed from their fits with small sweats, which at the first fits
breake forth very sparingly, but more plentifully when the Criife is at hand, the urine
at the first is pale and thicke, and sometimes thime, that is, when there is obstru-
cation. But when the matter is concoct, as in the face, it is red: if at the beginning of
the fit they call up any quantity of phlegme by vomitie, and that fit be terminated in a
plentifull sweate, it flowes the feaver will not long laft; for it argues the strength
of nature, the yeelding and tenitie of the matter flying up, and the excration of the
conjunct cause of the feaver.

A Quotidian feaver is commonly long, because the phlegmaticke humor being
cold, and moist by nature, is heevie and unape for motion; neither is it without feare
of a greater diseafe, because oft times it changes into a burning, or quartaine feaver,
especially if it be bred of false Phlegme, for false Phlegm hath an affinity with bitterness, wherefore by adusion it easily degenerates into it, so that it needs not scarce very strange, if false Phlegm by adusion turn into choler, or Melancholy. Those who recover of a quotidian Fever, have their digestive faculty very weak, wherefore they must be nourished with store of meats, nor with such as are hard to digest. In a quotidian the whole body is filled with rude humors, whereby it comes to pass that this Fever oft times lasts sixty days. But have a care, you be not deceived, and take a double tertian for a quotidian, because it takes the patient every day as a quotidian doth. Verily it will be very easy to distinguish these Fevers by the kind of the humor, and the propriety of the Symptoms and accidents; besides, quotidiens commonly take one in the evening, or the midst of the night, as then when our bodies are refrigerated by the coldness of the air caused by the absence of the Sunne, Wherefore then the cold humors are moved in us, which were bridled a little before by the presence and heat of the Sunne. But on the contrary, double tertians take one about noone. The sharpest and gentlest of the fit, the plentiful sweats breaking forth, the matter being concocted, causes us to think the quotidian thence and salutary.

The Cure is performed by two means: to wit, Diet and Pharmacy. Let the Diet be slender and attenuating, let the patient breathe in a clear air moderately hot and dry, let his meats be bread well baked, cocke or chicken brothes in which have been boil'd the roots of Parfly, Sorrell and the like, or some times the use of hot meats, as those which are spiced and salted, be unprofitable, especially to such as have their stomacke and liver much cooled. Let him eat Chickins, Mutton, Partridge and small Birds, river fishes and such as live in ronie waters fryed or broiled, reate Eagles and such like. These fruits are also good for him, Raifons, steewed Prunes, Almonds and Dates. Let his drink be small white wine mixed with boiler'd water. Moderate exercises will be good, as also frictions of the whole body; sleepe taken at a fitting time, and proportioned to waking, so that the time of sleepe fall not upon the time of the fit, for then it hurts very much; for calling the heat to the inner parts, it doubles the raging of the feverish heat inwardly in the bowells.

For the passions of the minde, the patient must be merry, and comforted with a hope shortly to recover his health. It seems not amiss to some, at the coming of the fit to put the feet and Legs into hot water, in which Chamomill, Dill, Melfcot, Marjorome, Sage, and Rosemary have been boiler'd.

The Medicines shall be such Syropes as are called digestive and aperitive, as Syrup of Wormwood, Mints, of the five opening rootes, Ozymel with a decoction of Chamomill, Calamin, Melilot, and the like, or with commoa decoctions. The Purgatives shall be Diaphanogen, Elecnarium Dioscoridis, Bena pica, Agarice; Turbithe, of which you shall make potions with the water of Mints, Balme, Hyllopes, Sage, Fennell, Endive or the like, Pillul aurea are also good. These purgatives shall sometimes be given in forms of a bole with Sugar, as the Physitioner being present shall think most fit and agreeable to the nature of the Patient.

About the state of the disease, you must have a care of the stomacke and principally of the mouth thereof, as being the chief seat of Phlegme; wherefore it will be good to moist it every other day with a pell of Chamomill mixed with a little white wine, as also to unlace it by taking a vomit of the juice of Radish, and much Ozymel, or with the decoction of the seeds and roots of Acorum and Chamomill; and Syrup of vinegar will be very good, especially at the beginning of the fit, when nature and the humors begin to move; for an inveterate quotidian, though you can cure it by no other remedy, nothing is thought to conduct so much as one dram of old Treacle taken with Sugar in forme of a Bole, or to drink it dissolved in Aquavite.
Of Tumors against Nature in General.

Lib. 7

Chapter XXIII.

Of a Scirrhous, or an Hard Tumor proceeding of Melancholy.

Having chewed the nature of Tumors caused by blood, choler and Phlegme, it remains we speake of these, which are bred of a Melancholy humor. Of these there are said to be foure differences. The first is of a true and legitimate Scirrhous, that is, of an hard Tumor endued with little fene, and so commonly without paine, generated of a natural Melancholy humor. The second is, of an illegitimate Scirrhous, that is, of an hard Tumor insensible, and without paine, of a Melancholy humor concerte by too much resolv and refrigerating. The third is of a cancerous Scirrhous bred by the corruption and adustion of the Melancholy humor. The fourth of a Phlegmonous, Erysipelas or Oedematosus Scirrhous, caused by Melancholy mixed with some other humor. The cause of all these kinds of Tumors is a grosse, tough and tenacious humor concrete, in any part. But the generation of such a humor in the body happens either of an ill and irregular diet, or of the unnaturall affects of the liver or spleene, as obstruction; or by suppression of the Hemorrhises or Course.

Signes.

The signes are hardnesse, renitency, a blackish colour, and a dilatation of the veins of the affected part with blackishnesse, by reason of the abundanse of the grosse humor. The illegitimate or hard Scurrou which is wholly without paine and fene, and also the cancerous, admit no cure, and the true legitimate scarce yeilds to any. Those which are brought to suppuration, easilie turne into cancers and fistulaes; these tumors though in the beginning they appeare little, yet in processe of time they grow to a great bignes.

Chapter XXV.

Of the Cure of a Scirrhous.

He Cure of a Scirrhous chiefly consists of three heads. First, the Phisition shall prescribe a convenient diet, that is, sober and moderate in feeding, tending to humidity, and indifferent heat; for his manner of life, let it be quiet and free from all perturbation of anger, greife and fadneffe, as also abhorring the use of venery. The second is placed in the evacuation of the antecedent matter, as by Phlebotomy, if need require, and by purging, by procuring the homorrhuids in men and the courses in women; let purgations be prescribed of Diacatholicon, Erys, diaphena, polipody, Eepthyamus according to the minde of the learned Phisition. The third consists in the convenient use of Topick medicines; that is, an emollient at the beginning, and then pretely resolving, or rather such as are mixed both of resolving & emollient faculties, as Galen teaches; for by the use of only emollient things there is danger of purfaeration; and a Cancer, and only of resolving there is feare of concretion the fubtiler part being resolved, and the grofter subsiding.

The emollient shall be thus: R. Radis allii, lib. c. rad. liliuom zji. consanguin in aqua com. pifcentur, traijiantur per fucarem, addendo olei chamom. & litor, au. zji. aspi humidi 3ji. emplaftri diachyl. all. cum oleo liliuom diffusati zji. eca alba quantum sit faitis, fiat ceratum. Or R. gummi ammornici, galle, bidelly, Bryacu liquide in aceto diffolwterum, au. 3ji. diachyl. mag. 3j8. olei liliuom, & axungia aferis, au. 3ji. ceroti aspi. descriptione Puliag. 3ji. liquescentes omnia fumund, eca quantum sit faitis, ut inde fiat ceratum faitis molle. When you have sufficiently ufed emollient things, fume the Tumour with strong Vinegar and Aqua vitæ poured upon
Of Tumors against Nature in General.

A piece of a Milkstone, flint or brick, if heated very hot, for so the mollified humor will be rarefied, attenuated, and resolved; then some while after renew your emollients, and then again apply your resolvers to waft that which remains, which could not be performed together and at once; for thus Galen healed a Scirrhous in Celerinus his son; Goats dung is very good to diastase Scirrhous tumors; but the Emplaster of Vigo with a double quantity of Mercury is effectual above the rest, as that which mollifies, resolves and wafts all tumors of this kind.

Chapter XXVI.

Of a Cancer already generated.

Cancer is an hard Tumor, rough and unequall, round, immovable, of an ash or livide colour, horrid by reason of the veins on every side, swollen with blacke blood, and spred abroad to the similitude of the stretched out legs and claws of a Crabb. It is a tumor hard to be knowne at the first, as that which scarce equals the bigness of a Chick, or Cicer, after a little time it will come to the greatnesse of a Hafell Nut, unless provokd by somewhat too acride medicines it suddenly increaseth; being growne bigger, according to the measure of the increaseth it tormenteth the patient with pincking paine, with acride heat, the groffe blood residing in the veins growing hot, and inferring a sense like the pincking of Needles, from which notwithstanding the Patient hath ofttimes some rest. But because this kind of Tumor by the veins extended & spred about it like claws and feet, being of a livide and ash colour, associated with a roughnesse of the skin and tenacity of the humor, represents, as it were, the toathed claws of the Crab, therefore I thought it not amiss here to insert the Figure of the Crabb, that so the reason both of the name and thing might be more perpicuous.

The figure of the Crabb, called Cancer in Latine.

Chapter XXVII.

Of the causes, kinds, and prognosticks of a Cancer.

Here we acknowledge two causes of a Cancer, the antecedent and consequent. The antecedent cause depends upon the default of irregular diet, generating and heaping up groffe and feculent blood, by the morbid effects of the name of a Cancer.
of the Liver dispropofed to the generation of that blood; by the infirmity or weake-
neffe of the fihelene in atracting and purging the blood; by the impreflion of the 
Courtes or Hamorrhoides, or any fuch accustomed evacuation. The conjunct caufe 
is that grofe and melanchallike humor flucking and thru up in the afcended part, as 
in a ftraite. That melanchallike blood which is more milde, and lette affine,one 
encrated by a degree of more fervide heat, broods a not ulcerated Cancer, but the 
more affine and acid ftrikes an ulcerated. For fo the humor which generated 
Carbuncles, when it hath acquired great heat, acrimony, and malignitie, correftes, 
and ulcerates the part upon which it alights. A Cancer is made more fierce and raging 
by meares inflaming the blood, by pertubations of the minde, anger, hate, and me-
dicines too acride, oily, and emplafite, unfitly applied, both for time and 
place.

Among the forts or kindes of Cancers, there be two chiefly eminent, that is, the 
ulcerated or manifest Cancer, and the not ulcerated, or occult. But of Cancers {ome 
possiefle the internall parts, as the Guts, Wombe, Fundement; others the externall, 
as the Breafts; also there is a recent, or late bred Cancer, and also an inverterate one. 
There is one small, another great; one raging and maligne, another more milde.
Every Cancer is held almost incurable, or very difcult to be cured, for it is a difafe 
altogether maligne, to wit, a particular Leprofic. Therefore faith Aetius a Cancer is 
oteafily stayed untill it hath eaten even to the innermoft of the part which it po-
ffes. It invades women more frequently than men, and thofe parts which are bare, 
face, fanguinous, and glandulous, and therefore opportune to receive a defluxion of 
a grofe humor, fuch are the Breafts and all the eiminatories of the noble parts. When 
it poiffes the Breafts, it often caufes inflammation to the armholes, and fends the 
welling ever to the glandules thereof; whereupon the Patients doe complain that 
a pricking paine even pierces to their hearts. But this fame paine alfo runs to the clavicles, 
and even to the inner fide of the shoulderblades and shoulders. When it is en-
creafed, and covers the noble par, it admits no cure but by iron, as that 
which contemnes, by reafon of the malignity & contumacy, the force of all 
medicines. Galen affirms, he cured a Cancer not ulcerated.

Now that cure is performed by medicines, purging melancholy, by Phlebotomy, 
when the strength and age of the Patient may well endure it, by fhuing all things, 
which may breed ill and feeculent blood. The diftermer of the Liver muft firft be 
corretted, the Spleene ftrengthened, as also the part afcended, in men the Hamorrhoids, 
in women their Courtes muft be procured.

Therefore thick and muddy wines, vinegar, browne bread, cold hearbes, 
old cheefe, old and falted flefh, Beefe, Venifon, goate, hare, garlick, 
onions and mustard, and laftly all acride, acid, and other falt things, 
which may by any means incraftate the blood, and inflame the humors, muft 
be
Of Tumors againſt Nature in General.

be chufed, A cooling & humecting diet muſt be preſcribed; fasting chufed, as also watchings, inmoderately labours, sorrow, cares, and mournings, let him ufe priſans, and in his brethren boile Mallowes, Spinach, Lettuce, Sorrell, Parflaine, Succory, Hops, Violets, Borragde, and the fowre cold feeds. But let him feece on Mutton, Veale, Kid, Capon, Pullet, young Hares, Partridges, Fifhes of ftony ri¬vers, teare Eggs, and ufe white wine, but moderately for this drinke.

The part affected with the Cancer muſt be gently handled, and not overburdened by over hard, or heavy things, or by too folid, or fat emplaiſers; on the contrary gentle and mitigating medicines muſt be uſed, applying alfo at certaine times ſuch things as refift venome or poyſon, as Treacle and Mithridate. Aifes milke is exce¬dently fit to affware the acrinaony of the cancerous humor. Therefore it muſt not only be taken inwardly, but alſo applied outwardly to the cancrous ulcer, making thereof a fomentation.

Chap. X X IX.

Of the cure of an ulcerated Cancer.

A N Ulcerated Cancer hath many ſignes common with that which is not ulcerated, as the roundneffe of the tumor, the inequality, roughneffe, and paine; to the judgement of the eye, the tumour feemes soft, but it is hard to the touch; the Ulcer is filthy, with lips thicke, fwolne, hard, knotty, turned out, and standing up, having a horrid appear, and cauſing ftreight chorous, filthy, and carionlike fiſh, ſometimes blacke, ſometimes mixed with rotten fiſh, and otherwifes with much bloud. This kind of ulcer is maligne, rebellious, and una¬tallable, as that which conneſtes mild eliminacies, and becomes more ftreke, by acide and ſtronge, the paine, feaver, and alſo the ſymptomes being encreaed, from whence the powers are defted, the wafting and confumption of the body folowes, and laſtly death. Yet if it be ſmall, and in a part which may ſuffer amputation, the body being firſt purged, and bloud drawne, the ſtrength of the Patient not diffwading, it will be convenient to uſe the hand, and take hold of, and cut away whatſoever is corrupt, even to the quicke, that no feare of contagion may remaine, or be left behind. The amputation finifh'd, the bloud muſt not be prefcedly stopped, but permitted to flow out in fome meafure, yea verily prefced forth all about it, that the veines and the bloud may be disburdened. When you have taken a ſuficient quantity of bloud, the bloud muſt be feared with an aduall cautery, applying a

For that will ſtrengthen the part affected, draw forth the venenate quality, and alſo ſtay the defluxion. Then muſt you apply mitigating medicines, & procure the falling away of the Efchar. To conclude, that which remaines, muſt be performed according to the cure of other ulcers. Now we know and underſtand that all the Cancer is cut away, and all the malignity thereof extin(ſt, when the ulcer cauſeth laudable matter, when that good fleſh begins to grow by little and little, like to the grains of a Pomegranate, the pricking paine, and alſo all the ſymptomes being affwaged. Yet the cure of an ulcerated Cancer, which ſhall poſſefs the lips may be more happily and mildly performed, no cauſticke medicine being applied after ſection, fo alſo that none any deformity will be left, when it is cicatrized. Which new and never ſoſtenly tried, or written of way, as farre as I know, I found and performed in a man of fifty yeares old. Doctor John Altine, a moſt learned Phyſitioner being called to Councef, James Guisemou, and Master Eufachins, the Kings Chirurgions, and John Le Jean the Duke of Guife his moft worthy Chirurgion being preſent.

The way is this; The Cancer muſt be thrust through the lips on both fides, above and below with a needle and threed, that fo you may rule and govern the Cancer with your left hand, by the benefit of the threed (leat any portion thereof ſhould ſcape the instrument in cutting) and then with your Sizers in the right hand, you may cut it off all at once, yet it muſt be done, that some ſubſtance of the inner part of the lippe, which is next to the teeth, may remaine, (if so be that the Cancer be cut off)
not growne quite through) which may serve as it were for a foundation to generate flesh to fill up the hollowness againe. Then when it hath bled sufficiently, the sides & brinches of the wound must be scarified on the right and left sides, within, and without, with somewhat a deepe scarification, that so (when we would draw together the sides and lips of the wound, by that manner of stitching, which is used in an hare-lippe) we may have the flesh more pliant and tractable to the needle and thread. The refidue of the cure must be performed jult after the same manner as we use in hare-lips, of which we shall treat hereafter.

Chap. XXX.

Of the Topick medicines to be applied to an un ulcerated, and not ulcerated Cancer.

At the beginning use repercussive medicines, such as are the juices of Nightshade, Plantaine, Henbane, Lettuce, Sorrel, Houseleek, Water Ceruse, Quicksilver, and the like. Also oleum rofarum emphacium, the powders of Sumach, Berberies, Litharge, Rapellag, etc.

![Image](image-url)

The remainder of the cure must be performed just after the same manner as we use in hare-lips, of which we shall treat hereafter.

Repelling medicines.

Theodorius: Emplastier.

Zechariah:

The application of whole, chicks, etc.:

Enol. II.

The plane of Erysimum.

The figures of the Cancer in the wombe.

Of the Tumors againſt Nature in General. L I B. 7
A Ventr made like a Pegarre for the Wombe afflicted with a Cancerous Uteer.

A. Schemes the upper end perforeated with five or six holes.
B. The lower end.
C. That part of the end which is opened by the springe, which is marked with the letter D.
E. E. The stringes, or laces.

Neither is that remedy for not ulcerated cancers to be contemned, which consists of a plate of lead besprinkled with quick-silver; for Galen himselfe testifieth that lead is a good medicine for maligne and invertebrate ulcers. But Guido Cauliacenfs is a witnesse of ancient credit and learning, that such plates of lead rubbed over with quick-silver, to such maligne ulcers as contenue the force of other medicines, are as it were Antidotes, to waite and overcome their malignity and euill nature. This kind of remedy, when it was prescribed by that most excellent Phyffion Hollarium, who commanded me to apply it to the Lady of Montigni made of Honor to the Queene mother, troubled with a Cancer in her left brest, which equalled the bignes of a Wallnut, did not truly throughly heale it, yet notwithstanding kept it from further growth.

Wherefore
Wherefore at the length growing weary of it, when she had continued her selfe to certaine Phyfitian boldly promising her quicke helpe, she tried with losse of her life, how dangerous, and disadvantageous that cure of a Conch was, which is undertaken according to the manner of healing other ulcers; for this Phyfition, when he had cast away this our medicine, and had begun the cure with mollifying, heating and attractive thing, the paine, inflammation and all the other Symptoms encreasing, the Tumor grew to that bigness, that being the humor dravne thither could not be contained in the part it selfe, it stretched the breft forth so much, that it broke it in the middle, just as a Pomegranate cleaves when it comes to its full maturity; whereupon an immoderate fluxe of blood following, for staying whereof she was force to strewe causticke ponders thereon; but by this meanes the inflammation and paine becomming more raging, and woundings comming upon her, her poore Soule in fleed of her promised health, yeilded up her ghost in the Phyfitions bosome.

Chap. XXXI.

Of the Fever which happeneth in Sarrious Tumors.

Whych a Feaver is a Quartaine, or certainly comming neare unto the nature of a Quartaine, by reason of the nature of the Melancholike humor of which it is bred. For this shut up in a certaine seat in which it makes the tumor, by communication of putride vapours heats the heart above measure, and enflames the humors contined therein, whence arises a Feaver. Now therefore a quartaine is a Feaver comming every fourth day, and having two dayes intermission.

The primitive causes thereof are, these things which encreafe Melancholike humors in the body, such as the long eating of pulse, of course and burnt bread, of salted flesh and fish, of grosse meats as Beefe, Goate, Venison, old Hares, old Chees, Cabbage, thick and muddy wines and other such things of the same kinde.

The antecedent causes are a heaped up plenty of Melancholike humors abounding over all the body. But the conjunct causes are Melancholike humors putrifying without the greater vessels, in the small veins and habite of the body. We may gather the signes of a Quartaine feaver from things which they call natural, not natural, and against nature, from things natural, for a cold and dry temper, olde age, cold and fat men, having their veins small, and lying hidde, their spleene swolne and weak, are usuallly troubled with quartaine Feveres.

Of things not natural; this Fever, or Ague is frequent in Autumnne, not onely because, for that it is cold and dry, it is fit to heape up Melancholike humors; but chiefly by reason that the humors by the heat of the precedeing Summer are easilly converted into adult Melancholy, whence far worser and more dangerous quartaines arise, than of the simple Melancholike humor; to conclude, through any cold or dry feaon in a region cold and dry, men that have the like Temper easilly fall into quartaines, to these a painfull kind of life full of danger and forrow doth accewe.

Of things contrary to nature; because the fits take one with painfull shaking, inferring as it were the fence of breaking or shaking the bones; further it taketh one every fourth day with an itching over the whole body, and oft times with a thime skurfe and pultes especally on the legges; the pulse at the beginning is little, flow, and deep, and the urine also is then white and waterif, inclining to somewhat a darke colour.

In the declination when the matter is concocted the urine becomes blacke, not occassioned by any maligne Symptoms or preternatural excelle of heat, (for so it should be deadly) but by excretion of the conjunct matter. The fit of the Quartaine continues 24 hours, but the intermission is 48 hours. It often takes its original
Lib. 7 Of Tumors against Nature in General.

Quartaines taken in the Summer are for the most part short, but in the Autumn long, especially such as continue till Winter. Those which come by succcession of any disease of the Liver, Spleene, or any other precedent disease, are worse than such as are bred of themselves, and commonly end in a Dropisy. But those which happen without the fault of any bowells, and to such a patient, as will be governed by the Physician in his Diet, infer no greater harme, but free him from more grievous and long diseases, as Melancholy, the Falling sickness, Convulsions, Madnede, because the Melancholy humor, the author of such diseases, is expelled every fourth day by the force of the fit of the Quartaine.

A Quartaine Fever, if there be no error committed, commonly exceeds not a year, for otherwise some Quartaines have been found to last to the twelfth year according to the opinion of Atticen. The Quartaine beginning in Autumn is oftentimes ended in the following Spring; the Quartaine which is caused by adult blood or choleric or Salt slegme is more easily and sooner cured, than that which proceeds from an adult Melancholy humor; because the Melancholy humor, terrestrial of its own nature, and harder to be diffusid than any other humor, is againe made by adution (the subtiller parts being diffusid and the grofter subsiding) more flubborne, groffe, maligne and acride. The cure is wholly absoved by two means, that is, by Diet and medicines. The Diet ought to be prescribed, contrary to the cause of the Fever in the use of the five things not natural, as much as in our power. Wherefore the Patient shall cleavage Swines flesh, flatulent, viside and glutinous meats, fatten fowles, salt meats and Venison, and all things of hard digestion. The use of white wine indifferent hot and thin is convenient to attenuate and incide the groffe humor, and to move urine and sweat; yea verily at the beginning of the fit a draught of such wine will cause vomiting, which is a thing of so great moment, that by this one remedy many have been cured. Yet if we may take occasion and opportunity to provoke vomit, there is no time thought fitter for that purpose than presently after meate, for then it is the sooner provoked, the fibers of the Stomach being humedled & relaxed, and the stomach is sooner turned to vomiting, whereupon follows a more plentiful, happy and cattie evacuation of the Flgmatique and Cholerick humor, and lefe troublesome to nature, and of all the crudities with which the mouth of the ventricle aboundes in a Quartaine, by reason of the more copious afflux of the Melancholike humor, which by his qualities cold and dry, disturbs all the actions and natural facultyes. Moreover exercises and frictions are good before meate, such passions of the minde as are contrary to the cause from which this Fever takes his original, are fit to be cherished by the patient, as Laughter, Leasting, Musique, and all such like things full of pleasure and mirth. At the begining the patient must be gently handled and dealt withal, and we must abstaine from all very strong medicines till such time, as the disease hath beene of some continuance. For this humor, contumacious at the beginning when as yet nature hath attempted nothing, is againe made more flubborne, terrestrial and dry, by the almost fiery heat of acride medicines. If the body abound with blood, some part thereof must be taken away by opening the Median or Basiliek vein of the left arm, with this caution, that if it appeare more groffe and blacke, we suffer it to flow more plentifully; if more thin, and tinctured with a laudable red Colour, that we presently stay it. The matter of this Fever must be ripened, concocted and diminisid with the Syrupes of Ephthyum, of Scalpenarium, of Maydenhayre, Agrimony, with the waters of Hops, Bugloss, Borage and the like. I sincerely protest, next unto God, I have cured very many quartaines by giving a potion of a little Treacle dissolved in about one ounce of Aqua viva, also sometimes by two or three grains of muske dissolved in Muskadine, given at the beginning of a particular fit towards the general declination of the disease, after general purgations the humor and body being prepared, and the powers strong; and certainly an inveterate Quartaine can scarce ever be diffusid unlesse the body be much heated with meats and medicines. Therefore it is not altogether to be disproved which many say, that they have driven a way...
way a quartaine by taking a draught of wine every day as soon as they came forth of their bed, in which some leaves of Sage had bin infused all the night. Also it is good a little before the fit to anoint all the spine of the back with oyles, heating all the nervous parts, such as the oyle of Rue, Wallnuts, of the Peppers, mixing therewith a little Aquavitae, but for this purpose the oyle of Calaftrum which hath beene boiled in an apple of Colocynthis, the Kennells taken out, upon hot coales to the consummation of the half part, mixing therewith some little quantity of the powders of Pepper, Pelitory of Spaine and Euphorbiwn, is excellent. Certainly such like Injuctions are good not onely to mitigate the vehemency of the terrible shaking, but also to provoke sweats, for because by their humid heat they discurse this humor being dull and rebellious to the expulsive facultie, for the Melancholy is as it were the droffe and muddle of the bloud. Therefore it on the contrary the Quartaine feaver shall be caufed by adult choler, we must hope for and expect a cure by refrigerating and humective medicines, such as are Sorrel, Lettuce, Purflane, brothres of the destruction of Cowcumbers, Courres, Melions and Pompions. For in this case if any use hot medicines, he shall make this humor most obftinate by the refolving of the subtiller parts, Thus Trellimus boasts that hee hath cured these kinds of Quartaine Feaver by the only use of refrigerating EpithemAs being often repeated a little before the beginning of the fit. And this is the fume of the Cure of true and legitmate intermitting Feavers. That is, of thofe which are caufed by one simple humor, whereby the Curot thofe which they call baffard intermitting Feavers, may be eafily gathered and understood, as which are bred by a humor impure and not of one kinde, but mixt or composed by admixture of some other matter; for example, according to the mixture of diverfe humors Phlegmatique and cholericke, the medicines muff alfo be mixt, as it were a confused kind of Fever of a Quasidian and scortitant must be cured by a medicine composed of things evacuating flegme and choler.

What quarte
taine must be coryed with
refrigerating
things.

What baffard
againes are and
how they must
be cured.

A

Of Aneurism, that is, the dilatation, or springing of an Artery, vaine, or Simen.

An Aneurism is a soft tumor yeelding to the touch, made by the bloud and spirit powred forth under the flefhand Muscles, by the dilatation or relaxation of an Artery. Yet the author of the definitions feemes to call any dilatation of any venous veffell by the name of an Aneurisna. Gelse calls an Aneurisna an opening made of the Anafoma of an Artery. Also an Aneurisna is made, when an Artery that is wounded clofetb too flowly, the Subftance which is above it being in the meane time agglutinated, filled with flefhand cicatrizt, which doth not feldome happen in opening of Arteries unskillfully performed and negligently cured; therefore Aneurismae are abolutely made by the Anafomasis, springing, breaking, Erofion, and wounding of the Arteries. These happen in all parts of the body, but more frequently in the throat, especially in women after a painfull travaile. For when as they more strongly strive to hold their breath, for the more powerful expulflion of the birth, it happens that the Artery is di atrd and broken, whence follows an effufion of bloud and spirits under the skin. The figures arc, a swelling one while great, another small, with a pulsation and a colour not varying from the native constitution of the skinne. It is a soft tumor, and so yeeding to the impression of the fingers that if it peradventure be small, it wholy vanifeheth, the Arterious bloud and spirits flying backe into the body of the Artery, but prettily affoone as you take your fingers away, they return againe with like celerity. Some Aneurismae do not onely when they are preffed, but also of themselves make a fenfible hissing, if you lay your ear neare to them, by reafon of the motion of the vitall spirit ruthing with great violence through the straitnes of the paffidge.

Wherefore
Wherefore in Anuresmae in which there is a great rupture of the Artery, such a Prognostic, noeife is not heard, because the spirit is carried through a larger passage. Great Anuresmae under the Armpits, in the Groines and in other parts wherein there are large vessells, admit no cure, because so great an eruption of blood and spirit often follows upon such an incision, that death prevents both art and Cure. Which I A History, observed a few yeares agoe in a certaine prelft of Saint Andrews of the Arches, M. John Matis dwelling with the chiefe President Christopher de Thou. Who having an Anuresma at the setting on of the shouder about the bignes of a Wall-nut, charged him, hee should not let it be opened, for if it did, it would bring him into manifest danger of his life, and that it would be more safe for him, to break the violence thereof with double clothes steeped in the juice of Night-thade and Houtelfe, with new and whayche cheese mixt therewith: Or with Fregumentum de Bola or Empifram contra rupturam and such other refrigerating and astringent medicines, if he would lay upon it a thin plate of Lead, and would use shorter breeches that his doubting broken: his body being opened I found a great quantity of blood pourred forth into the Capacity of the Cheft, but the body of the Artery was dilated to that largeffe I formerly mentioned, and the inner Coate thereof was bony, being fo attenuated and heated therewith that it cannot be containd in the recepca of the Artery, it diatends it to that largeness as to hold a mans fist: Which I have observed in the dead body of a certaine Taylor, who by an Anuresma of the Ar. venous veins suddenly whilst he was playing at Tennis fell downe dead, the vessell being broken: his body being opened I found a great quantity of blood flowed forth into the Capacity of the Cheft, but the body of the Artery was dilated to that largeness I formerly mentioned, and the inner Coate thereof was bony. Wherefore I diligently admonished the young Chirurgion that hee do not rashly open How they Anuresmae unleffe they be small in anigoble part, and not indued with large vessells, but rather let him perforne the cure after this manner. Cut the skinne which lies over it, then separate it with your knife from the particles about it, then thrust a blunt and crooked needle with a thred in it under it, binte it, then cut it off and fo expect the falling off, of the thred of it selfe, whiles nature covers the orifices of the cut Artery with new flesh, then the residue of the cure may be performed after the manner of simple wounds. The Anuresmae which happen in the internall parts are uncurable. Such as frequently happen to those who have often had the undien and sweat for the cure of the French disease, because the blood, being fo attenuated and heated therewith that it cannot be conveyed in the receptacles of the Artery, it diatends it to that largeness as to hold a mans fist: Which I have observed in the dead body of a certaine Taylor, who by an Anuresma of the Ar. A History, various veins suddenly whilst he was playing at Tennis fell downe dead, the vessell being broken: his body being opened I found a great quantity of blood powred forth into the Capacity of the Cheft, but the body of the Artery was dilated to that largeness I formerly mentioned, and the inner Coate thereof was bony. For which cause within a while after I shewed it to the great admiration of the beholders in the Physicians Schole whilst I publiquely dissed a body therewith whilst he lived faid he felt a beating and a great heare over all his body by the force of the pullation of all the Arteryes, by occasion whereof hee often fweated. Doctor Sylvain the Kings professor of Physicke at that time forbade him the ufe of Wine, and wished him to vfe boyled water for his drinks, and Crudds and new Cheeses for his meat, and to apply them in forme of Cataplases upon the grieved and swolne part. At night he used a pifin of Barley meale and Poppy-seeds, and was purged now and then with a Clyfter of refrigerating and emollient things, or with Cassia alone, by which medicines hee faid hee found himfelfe much better. The cause of such a bony constitution of the Arteryes by Anuresmae is, for that the hot and servid blood first dilates the Coate of an Artery, then breaks them, which when it happens, it then borrows from the neighbouring bodies a fit mater to restore the loofed continuity thereof. This matter whilst it is dried and hardened, it degenerates into a Grifique. 
Gratefully or else a bony substance, just by the force of the same material and efficient causes, by which flies are generated in the veins and bladder. For the more terrestrial portion of the blood is dried and condensed by the power of the unnatural heat conteined in the part affected with an Aneurismate, whereby it comes to pass that the substance added to the dilated and broken Artery is turned into a body of a bony consistence. In which the singular providence of nature, the handmaide of God is shewed, as that which, as it were by making and opposing a new wall or bancke, would hinder and break the violence of the raging blood swelling with the abundance of the vital spirits, unless any had rather to refer the cause of that hardness to the continual application of refrigerating and astringent medicines. Which have power to condensate and harden, as may not obscurely be gathered by the writings of Galen. But beware you be not deceived by the forementioned signs; for sometimes in large Aneurismates you can perceive no pulsation, neither can you force the blood into the Artery by the pressure of your fingers, either because the quantity of such blood is greater than which can be contained in the ancient receptacles of the Artery, or because it is condensate and concrete into Clods, whereupon wanting the benefit of ventilation from the heart, it presently putrifies; Thence ensuing great paine, a Gangrene, and mortification of the part, and lastly the death of the Creature.

The End of the Seventh Booke.
OF PARTICULAR
TVMORS AGAINST
NATVRE.

The Eight Booke:

The Preface.

Because the Cure of diseases must be varied according to the variety of the temper, not only of the body in general, but also of each part thereof; the strength, figure, form, fire, and fibre thereof being taken into consideration; I think it worth my pains, having already spoken of Tumors in General, if I shall treat of them in particular which affect each part of the body, beginning with those which affect the head. Therefore the Tumor either affects the whole head, or else only some particle thereof, as the Eyes, Eares, Nose, Gums and the like. Let the Hydrocephalus, and Physcephalus be examples of those tumors which poffeffe the whole head.

CHAP. I.

Of an Hydrocephalus or many tumor which commonly affects the heads of Infants.

The Greeks call this disease Hydrocephalus, as it were a Drippe of the Head, by a waterish humor, being a disease almost peculiar to Infants newly borne. It hath for an external cause the violent compression of the head by the hand of the Midwife or other wise at the birth, or by a fall, contusion and the like. For hence comes a breaking of a vein or Artery, and an eflufion of the blood under the skinne, Which by corruption becoming whitish, lastly, degenerateth into a certain waterish humor. It hath also an inward cause, which is the abundance of ferous and acride blood, which by its tenuity and heat sweats through the Pores of the vessels, sometimes betweene the Muscular skine of the head and the Periocranium; sometimes betweene the Periocranium and the skull, and sometimes betweene the skull and the membrane called Dura mater, and other whistles in the Ventricles of the braine.

The figures of it, contained in the space betweene the Muscular skine and the Periocranium, are a manifest tumor without paine, hot, and much yeelding to the
Of Particular Tumors against Nature.

L. II. 8.

The tumor, when it remaineth between the Periartrium and the skull, are for the most part like the foramen, unless it be that the tumor is a little harder, and not so yielding to the finger, by reason of the parts between it and the tumor; and also there is somewhat more fence of pain. But when it is in the space between the skull and Dura mater, or in the ventricles of the Brain or the whole substance thereof, there is a dullness of the fences as of the sight and hearing, the tumor doth not yield to the touch, unless you use strong impression, for then it sinketh somewhat down, especially in infants newly born, who have their sculls almost as soft as wax, and the junctures of their Sutures laxe, both by nature, as also by accident, by reason of the humor contained therein moistening and relaxing all the adjacent parts; the humor contained herein lifteth up the Scull somewhat more high, especially at the meetings of the Sutures, which you may thus know, because the Tumor being pressed, the humor flyes back into the secret passages of the brain.

To conclude, the pain is more vehement, the whole head more swollen, the forehead stands somewhat further out, the eye is fixt and immovable, and also weepes by reason of the serous humor sweating out of the brain.

Ves Alias writes that hee saw a girl of two years old, whose head was thicker than any mans head by this kind of Tumor, and the skull not bonie, but membranous, as it useth to be in abortive births, and that there was nine pound of water ran out of it.

Peleius writes that hee saw a child whose head grew every day bigger by reason of the watery moisture contained therein, till at length the tumor became so great, that his necke could not bare it neither standing nor sitting, so that hee died in a short time. I have observed and had in cure foure children troubled with this disease, one of which being disceded after it died, had a braine no bigger than a Tennis Ball. But of a Tumor and humor contained within under the Cranium or Scull, I have seene none recover, but they are easilly healed of an external Tumor.

Therefore whether the humor lye under the Periartrium, or under the mucous skin of the head, it must first be assailed with resoiling medicines, but if it cannot be thus overcome, you must make an incision, taking heed of the Temporal Muscle, and thence effuse out all the humor, whether it resemble the washing of flesh newly killed, or blackish blood, or congealed or knotted blood, as when the tumor bath been caused by contusion; then the wound must be filled with dry lint, and covered with double boufliers, and lastly bound with a fitting ligature.

CHAP. II.

Of a Polypus, being an eating disease in the Nofe.

The reason of

The Polypus is a Tumor of the Nofe against nature, commonly arising from the Os Ethmides or spongy bone. It is so called, because it resembles the feet of a Sea Polypus in figure, and the flesh thereof in consistence. This Tumor stops the Nofe, intercepting and hindering the liberty of speeking, and blowing the Nofe. Celsus faith the Polypus is a caruncle or Excrection one white, another white reddish, which adheres to the bone of the Nofe, and sometimes fills the Nostrils hanging towards the lips, sometimes it descends back through that hole, by which the spirit descends from the Nofe to the throat, it grows so fast that it may he seen behind the Pauca, and often strangles a man by stopping his breath. There are five kinds thereof, the first is a soft membrane, long and thin like the relaxed and deprefled Pauca, hanging from the middle griffe of the noste, being filled with a Phlegmatic or vificle humor. This in expiration hangs out of the Nofe, but is drawne in and hid by inspiration; it makes one stopt in their speech and short in their stitches. The second, hath hard flesh, bred of Melancholy blood without adustion, which obstructing the Nostrils intercepts the respiration made by that part. The third, is flesh hanging from the Griffe, round, and soft, being the offspring
spring of Phlegmaticke blood. The fourth is an hard Tumor, like a stone, which when it is touched yeeldsa found like a stone; it is generated of Melancholike blood dried, being somewhat of the nature of a seirrhous confirmed and without paine.

The fifth is as it were compos'd of many cærotaceous ulcers spread over the transverse suface of the gristle.

Of all these sorts of Polypi, some are not ulcerated, others ulcerated, which feel forth a thinning and strong smelling salth. Such of them as are painsfull, hard, reeling, and which have a livid, or leaden, colour, must not be touched with the hand, because they favour the nature of a Cancer, as into which they oft degenerate, yet by reason of the paine which oppresses more violently, you may use the Anodyne medicines formerly described in a Cancer, such as this following.

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Why it must be taken clost away.

Of the Parotides that isferiaine fweings about the Eares

He Parotis is a Tumor against nature, affecting the Glandules and thofe about the Eares, which are called the Eumenories of the braine, for thefe because they are loose and spongy, are fit to receive the excrements thereof. Of thefe some are critical, the matter of the disease somewhat digested being sent thither by the force of nature, Others Symptomatall, the excrements of the braine increased in quality or quantity rushing thither of their owne accord. Such abceffes often have great inflammation joyned with them, because the byting humor which flowes thither is more vitiated in quality than in quantity. Besides all they often cause great paine, by reason of the diffusion of the parts induced with most exquisit fence, as also by reason of a Nerve of the fifth Conjugation spread over these parts, as also of the neighbouring membranes of the braine, by which means the patient is troubled with the Head-ach and all his face becomes swollen. Yet many times this kind of Tumor is often to be rayed by a tough, viscid, and grosse humor.

This disease doth more grievously affift young men than old. It commonly brings a Fever and watching. It is dificult to be cured, especially when it is cau'd by a grosse, tough, and viscid humor, sent thither by the Crifs.

The cure must be performed by diet, which must be contrary to the quality of the humor in the temper & consistence of the meates. If the inflammation & redness be great, which
which indicate abundance of blood, phlebotonic will be profitable, yea very necessary. But here we must not use the like judgment in application of local medicines as we do in others tumors, as Galen admonisheth us, that is, we must not use repercussives at the beginning, especially if the abscess be critical, for so we should infringe or trueflow the endeavors of nature forcibly freeing it fell to the morbific matter. But we must much less repell or drive it backe if the matter which hath flowed thither be venenac, for to the reflow thereof to the noble parts would prove mortal. Wherefore the Chirurgion shall rather assist nature in attracting and drawing forth that humor. Yet if the defluxion shall be too violent, if the paine so fierce that there may be fear of watchings and a fever, which may deject the powers, Galen thinks it will be expedient with many resolving medicines to mix some repelling. Wherefore at the beginning let such a Cataplasm be applied:  
R. Fr. herb. & sem. lin. ana. 3ij. cognitum cum musa ant decocto cham. adendo but. recen. & olei cham. ana. 3ij. fat Cataplasmatis. And the following ointment will also be good:
R. But. recen. 3ij. olei cham. & hilar. an. 3ij. anguen. de Althea 3o. ceparum make an ointment to be applied with meat and greasy wool to mitigate the paine, also somewhat more stong disclosing and resolving medicines will be profitable, as:  
R. Rad. altheae & bryon, an. 3ij. sol. vata, pulvis. orig. an. m. j. flo. chamam, mult. an. p. s. cognitum su hydromelite, pipium, tynianitum, adendo form. cognitum. an. sem. praecipue. pulvis. cham. molib. an. 3ij. olei anch. rutae. an. 3ij. fat cataplasmatis. But if you determine to resolve it any more, you may use Empodium Oxyuricum & Medilh. Plaister. If the humor doth there concrete and grow hard, you must betake you to the medicines which were prefcribed in the Chapter of the Scirrhus but if it tend to suppuration, you shall apply the following medicine.
R. Rad. literum & ceparum sub celeritum coel. an. 3iij. vitell. over. num. 3. axumg. fulva & anguen. hisaforem. an. 3ij. far. sem. lini 3ij. fat cataplasmatis. But if the matter do require, let the tumor be opened as we have formerly prescribed.

CHAP. III.
Of the Epulis, or overgrowing of the flesh of the Gums.

What is it. The Epulis is a flabby excrescence of the Gums between the teeth, which is by little and little oftentimes encroased to the bignes of an Egg, so that it both hinders the speach and eating: it casts forth salivous and stinking filth, and not seldom degenerates into a Cancer, which you may understand by the propriety of the colour, paine and other accidents: for then you must by no meanes touch it with your hand. But that which doth not torment the Patient with paine, may be pluckt away; and let this be the manner thereof.

Let it be tied with a double thread, which must be stricter twitched until the time as it fall off; when it shall fall away, the place must be burnt with a cautery put through a trunke or pipe, or with Aqua fortis, or oyle of Petrol, but with great care that the sound parts ajoyning thereto be not hurt, for if to be that it be not burnt, it usually returns.

I have often by this meanes taken away such large tumors of this kind, that they hung out of the mouth in no small bignes, to the great disfiguring of the face, which when as no Chirurgion durst touch, because the flesh looked livide, I ventured upon because they were free from paine; and by taking them away and cauterizing the place, I perfectly healed then not truly lOdanie and at once; for although I burnt the place after defluxion; yet nevertheless they sprung up again, because a certain portion of the bone and sockets in which the Teeth stand fastened, were become rotten. I have often observed such like flesh by continuance of time to have turned into a gristled and bony substance. Wherefore the cure must be begun as speedily as may be; for being but little, and having fastened no deep roots, it is more easily taken away, being then only filled with a viscid humor, which in viscid or time is hardened, and makes the taking away thereof more difficult.
Of the Ranula.

Here is oft times a tumor under the tongue, which takes away the liberty of pronunciation, or speech; wherefore the Greeks call it *Batraciunm*, the Latins *Ranula*, because such as have this disease of the tongue, seem to express their minds by croaking rather than by speaking.

It is caused by the falling downe of a cold, moist, coarse, tough vitriolic and phlegmaticke matter, from the braine upon the tongue, which matter in colour and consistence resembles the white of an egg, yet sometimes it lookes of a Citrine or yellow with colour.

That you may safely performe the cure, you must open the Tumor rather with a cautery or hot Iron, than with a Knife, for otherwise it will returne againe. The manner of opening of it must be thus. You shall get a bended hollow and perforated iron plate with a hole in the midst, and making the patient to hold open his mouth, you shall fixe, that the hole may be upon the part which must be opened. Then there you must open it with an hot Iron, for so you shall hurt no part of the mouth which is whole, but when you are ready to burne it, by thrusting your thumbe under the Patients Chin, you may somewhat elevate the Tumor, whereby you may open it with more certainty. When it is opened you must thrust out the matter contained therein, and then wash the patients mouth with some barley water, bony, and Sugar of Roses, for so the ulcer will be safely and quickly healed.

The description of the Iron plate and crooked actual Cautery.

Of the swelling of the Glandules, or Almonds of the Throat.

Nature at the jaws near the roots of the Tongue, hath placed two Glandules opposite to one another, in figure and magnitude like to Almonds, whence also they have their name. Their office is to receive the spittle falling downe from the braine, both that the tongue be not hindered in speaking, as also that the tongue might alwayes have moisture, as it were laid up in store, lest by continuall speaking it should grow dry and fail. For thus this spittle being consumed by fewerish heats, the patients are scarce able to speake, unlese they first moisten their tongue by much washing of their mouth.

These Glandules because they are seated in a hot and moist place, are very subject to inflammations; for there flows into these oft times together with the blood, a great quantity of crude, phlegmaticke and viscous humors, whence ariseth a tumor.
which is not seldom occasioned by drinking much and that vaporous wine, by too much Gluttony, and staying abroad in the open air.

Swallowing is painfull and troublesome to the Patient, and commonly hee hath a Fever. Oft times the neighbouring Mucles of the Throat and necke are so swolne together with the Glandules, that (as it usually happens in the Squeeze) the passage of the breath and aire is stopped, and the Patient strangely.

We reftit this imminent danger by purging and blood-letting, by applying Cupping-Glasses to the Necke and shoulders, by frictions and ligatures of the extreme parts, and with washing and gargling the mouth and throat with astringent gargarifmes. But if they come to supputation, you must with your incision Knife make way for the evacuation of the Pus, or Matters; but if on the contrary, these things performed according to art, defluxion be encreased, and there be present danger of death by stopping and intercepting the breath, for the shunning so great and imminent danger, the top or upper part of the Affera arteris or Weazon must be opened, in that place where it utile to stand most out, & it may be done so much the safer, because the jugular veins, and arteries are furthest distant from this place, and for that this place hath commonly little flesh upon it. And that the incision may be the more easily come to by the instrument, then you shall make an incision overwhart with a crooked knife between two rings (for wanting not touching the Grislye substance) that is to say, the membrane which ties together the Grislye rings being onely cut; you shall then judge that you have made the incision large enough, when you shall perceive the breath to break out by the wound; the wound must be kept open so long, untill the danger of suffocation be past; and then it must be fowed up not touching the Grislye; But if the lips of the wound shall be hard and callous, they must be lightly severed, that so they may become bloody for their easier agglutination and union, as we shall shew more at large in the cure of Hare lips. I have had many in cure, who have recovered, that have had their Weazon together with the Grislye rings thereof cut with a great wound, as we shall note when wee shall come to treat of the cure of the wounds of that part.

Chap. VII.

What the Vulva is, and what the use thereof.

The Caufe of the swolne threfh.

Symptoms.

The Cure.

The Cure by Chirurgery.

Of the inflammation and relaxation of the Vulva, or Columella.

He Vulva is a litlle body, spongy and somewhat sharpened to the forme of a pine apple, hanging even downe from the upper and inner part of the palate, to break the force of the Aire drawn in, in breathing and carried to the Lungs, and to be a quill to forme and tune the voyce. It often grows above measure by receiving moysture falling downe from the braine, becoming sharpe by little and little from a broader and more swolne body. Which thing causes many Symptoms; for by the continual irritation of the distilling humour the Cough is caufed, which also bindes the theepe, and intercepts the liberty of speech, but also by hindring respiration the patients cannot sleepe unlefe with open mouth; they are exercized with a vaiue endavoring to swallow (having as it were a morsefull sticking in their jawe) and are in danger of being strangely.

This disease must be ratified and assailed by purging, bleeding, Cupping, taking of Chylyers, using astringent Gargles, and a convenient diet; but if it cannot thus be overcome, the cure must be tried by a caustick of Aquæ fortis, which I have divers times done with good success. But if it cannot be done, it will be better to put to your hand, than through idleness to suffer the patient to remaine in imminent and deadly danger of strangely; yet in this there must very great caution be used, for the Chirurgon shall not judge the Vulva fit to be touched with an instrument or caustick, which is swolne with much enflamed, or blacke blood after the manner of a Cancer; but hee shall boldly put to his hand, if it be longish, grow small by little and little into a sharpe, loofe & soft point, if it be neither exceeding red, neither swolne with too much blood, but
but wherewith and without paine. Therefore that you may more easily and safely cut away, that which redounds and is superfluous, desire the patient to sit in a light place, and hold his mouth open; then take hold of the top of the Vvula with your fingers, and cut away as much thereof as shall be thought unprofitable. Otherwise you shall bind it with the instrument here under described; the invention of this instrument is to be ascribed to Honoratus Tajellanus that diligent and learned man, the King's Physician in ordinary, and the chief Physician of the Queene mother, Whose also may be used in binding of Pitypes and warts in the necke of the Wombe.

The Delination of constrictory rings fit to swich, or bind the Columella, with a twisted thread.

A. Shewes the ring whose upper part is somewhat hollow.
B. A double waxed thread, which is couched in the hollownesse of the ring, and hath a running, or loose knot upon it.
C. An iron rod, into the eye whereof the forementioned double thread is put, and it is to twitch the Columella when as much thereof is taken hold of as is unprofitable, and so to take it away without any fluxe of blood. When you would strain the thread, draw it again through this iron rod, and so strain it as much as you shall think good, letting the end of the thread hang out of the mouth. But every day it must be twitched harder than other, until it fall away by means thereof, and so the part and patient be restored to health. I have delineated three of these instruments, that you may use which you will, as occasion shall be offered.

A Figure of the Speculum oris, by which the mouth is held and kept open, whilst the Chirurgeon is busied in the cutting away or binding the Vvula.

But if an eating ulcer shall associate this relaxation of the Vvula, together with a fluxe
the flux of blood, then it must be burnt and feared with an hot iron, so thrust into a Trunke, or Pipe with an hole in it, that no sound part of the mouth may be offended therewith.

A hollow Trunke with a hole in the side, with the hot iron inserted, or put therein.

Chap. VIII.

Of the Angina, or Squinzy.

What it is.

The Squinzy, or Squinzy, is a swelling of the jawes, which hinders the entrance of the ambient aire into the Throat, and the vapours and spirit from passage forth, and the meate also from being swallowed. There are three differences thereof. The first torments the patient with great paine, no swelling being outwardly apparent, by reason the morbificke humor lyeth hid behind the almonds or Glandules at the Verseture of the necke, so that it cannot be perceived, unless you hold downe the tongue with a spatula or the Speculum oris, for so you may fee the rednesse and tumor there lying hid. The patient cannot draw his breath, nor swallow downe meate, nor drinke; his tongue, like a Gray-hounds after a course, hangs out of his mouth, and he holds his mouth open that so he may the more easily draw his breath; to conclude, his voyce is as it were drowned in his jawes and nose; he cannot lie upon his backe, but lying is forced to sit, that so he may the more easily draw his breath: to conclude, his voyce is as it were drowned in his jawes and nose; the eyes are fiery and swollen, and standing out of their orbe. Those which are thus affected are often suddenly suffocated, so amazed rising about their mouths.

The second difference is said to be that, in which the tumor appears inwardly, but little or scarce anything at all outwardly, the tongue, Glandules, and jawes appearing somewhat swollen.

The third.

The cause is either internall, or externall. The externall are a stroke, splinter or the like things sticking in the Throat, or the excess of extreme cold, or heat. The internall causes are a more plentiful defluxion of the humors either from the whole body or the braine, which participate of the nature either of blood, choler or phlegme, but seldom of Melancholy. The figures by which the kind and commixture may be knowne, have beene declared in the generall treatise of tumors. The Squinzy is more dangerous, by how much the humor is lefse apparent within and without. That is less dangerous which sheueth it selfe outwardly, because such an one fluths not up the wayes of the meate, nor breath. Some dye of a Squinzy in twelve hours others in two, four or seven daies. Thoic (after Hippocras) which scape the Squinzy, the diseafe passeth to the lungs, and they dye within seven daies.
days, but if they scape these days, they are suppursed; but also often times this kind of disease is terminated by disappearing, that is, by an obscure reflux of the humor into some noble part, as into the Lungs (whence the Empyema proceeds) and into other principal parts, whose violating brings inevitable death; sometimes by resolution, otherwise by suppuration.

The way of Resolution is the more to be desired; it happens when the matter is small, and that subtle, especially if the Phyfition shall draw blood by opening a vein, and the patient use Gargarifmes. A Critical Squinny divers times proves deadly by reason of the great falling down of the humor upon the throat, by which the paffage of the breath is sodainely shut up. Brothes must be used made with Capons, and Veale, strafioned with Lerruce, Purdaine, Sorrell, and the cold feeds.

If the Patient shall be somewhat weak, let him have poached Eggs, and Barly Dine. Creames, the Barly being first boiled with Raifons in water and Sugar, and other means of this kind. Let him be forbidden wine, in stead whereof he may use Hydro-melites, and Hydrofudora (that is, drinks made of water and Hony, or water and Sugar) as also the Syrupes of dried Rofes, of Violets, Sorrell and Limons, and others of this kind. Let him avoid too much sleepe. But in the mean time the Phyfition must be careful to all, because this disease is of their kind, which brooke no delays. Wherefore let the "Baflaca be presently opened, on that side the tumor is the greater; then within a short time after the fame day, for evacuation of the con junct matter, let the veine under the tongue be opened; let cupping-Glafires be applied, sometimes with scarification, sometimes without, to the necke and shoulders, and let frictions and painfull Ligatures be used to the extreme parts. But let the humor impact in the part be drawne away by glifters and sharpe suppuratories. Whileft the matter is in defluxion, let the mouth without delay be washed with astringent Gargarifmes to hinder the defluxion of the humor, lest by its sudden falling downe it kill the Patient, as it often happens, all the Phyfitions care and diligence notwithstanding. Therefore let the mouth be frequently washed with Oxygen, or such a gargaryme: R Pomarum flbeg. na. iiiij. fumach, Refar. rub. an. m. f. berber. sij. let them be all boyled with sufficient quantity of water to the consumption of the halfe, adding thereunto of the wine of fourre Pomegranates iiiij. of dia- amorum sij. let it be a little more boil'd and make a gargle according to arte. And there may be other Gargarifmes made of the waters of Plantaine, Night-shade, Verjucer, lukep of Rofes and the like. But if the matter of the defluxion shall be Phlegmanick, Alume, Pomegranate pill, Cypresse nes, and a little Vinegar may be safely added. But on the contrary, repercuurives must not be outwardly applyed, but rather Levitatives, whereby the external parts may be relaxed and rarified, and so the way be open either for the diffusing or resolving the portion of the humor. You shall know the humor to begin to be resolved, if it leave the patient, if he swallow, speake and breathe more freely, if he sleepe quietly, and the paine begin to be much awaged. Therefore then natures endeavor must be helped by applying resolving medicines, or else by using suppuratives inwardly and outwardly, if the matter continue to burn into pus. Therefore let Gargarifmes be made of the roots of March-Mallowes, Eggs, Iujubes, damatke Prunes, Dates, perfectly boil'd in water. The like benefit may be had by Gargarifmes of Cowes milke with Sugar, by oyle of freee Almonds, or Violets warme, for such things helpe forward suppurat and awage paine; let suppurating capaplafmes be applyed outwardly to the necke and throat, and the parts be wrapped with wooll moistened with oyle of Lillyes. When the Phyfition shall perceive that the humor is perfectly turned into pus, let the patients mouth be opened with the Speculumoris, and the abfeefle opened with a crooked and long incifion knife, then let the mouth be now and then washed with cleansing gargles: as R. Aqna borde. la. f. melius refci. & fyr. refar. sect. an sij. fiat gar- garifmes. Allo the use of umecel, that is wine, and Hony will be fit for this purpose. The ulcer being clenfed by these means, let it be cicatrized with a little roch-Alume added to the former gargarymes.
The Figure of an incision knife opened out of the hause, which serves for a stroke thereto.

**Chap. IX.**

Of the Bronchocele, or Rupture of the throat.  

**The reason of the name.**  
Hat which the French call Goetra that the Greeks call Bronchocele, the Latines Gutters Hernia, that is, the Rupture of the throat. For it is a round tumor of the throat, the matter wherof comming from within outwards, is contenied between the skin and weazon, it proceeds in weomen from the same cause as an Anurisima.

But this generall name of Bronchocele undergoes many differences, for sometimes it retains the nature of Melisemides, otherwhiles of Stomatæs, Atheroma's, or Anurisima's, in some there is found a fleshy substance having some small paine, some of these are small, others so great, that they seeme almost to cover all the throat; some have a Cyste, or bagge, others have no such things all how many so ever they be, and what end they shall have, may be knowne by their proper signes, those which shall be cures able, may be opened with an actual or potential cautery, or with an incision knife. Hence if it be possible, let the matter be presently evacuated, but if it cannot be done at once, let it be performed at diverse times, and discoursed by fit remedies, and lastly let the ulcer be consolidated and cicatrized.

**Chap. X.**

Of the Pleurifie.

**What it is.**
He Pleurifie is an inflammation of the membrane, involving the ribbes, caused by subtile and cholericke blood, springing upwards with great violence from the hollow veine into the Azygos, and thence into the intercoftall veines, & is at length powred forth into the emptie spaces of the intercoftall muscles, and the mentioned membrane. Being contained there, if it tend to suppuration, it commonly infrers a pricking paine, a Fever and difficulty of breathing. This suppurred blood is purged and evacuated one while by the mouth; the Lungs sucking it, and so calling it into the Weazon, and so into the mouth, otherwhiles by urine, and sometimes by the nose.

But if nature being too weake, cannot expectorate the purulent blood poured forth into the capacity of the Chesth the disease is turned into an Empyema, wherefore the Chirurgion must then be called, who beginning to reckon from below upwards, may make a vent between the third and fourth true and legitimate ribs, & that must be done either with an actual or potential cautery, or with a sharpe knife drawne upwards towards the backe, but not downwards, lest the veifells should be violated which are differeniated under the rib. This aperation may be safely and easily performed by this actual cautery; it is perforated with four holes, through one whereof there is a pin put higher or lower according to the depth & manner of your incision.
then the point thereof is thrust through a plate of iron perforated also in the midst, into the part designed by the Physitian, lest the waverings hand might peradventure touch, and so hurt the other parts not to be meddled withall. This same plate must be somewhat hollowed, that so it might be more easily fitted to the gibbous side, and bound by the corners on the contrary side with four strings. Wherefore I have thought good here to express the figures thereof.

The Figure of an actual cautery with its plate fit to be used in a pleurisy.

But if the patient shall have a large body, Chest and ribs, you may divide and perforate the ribs themselves with a Trepam, howsoever the aperture be made, the pus or matter must be evacuated by little and little at several times; and the capacity of the Cheft clenched from the purulent matter by a detergent injection of viij ounces of Barley water, and 

Chap. XI.

Of the Dropsic.


He Dropsic is a Tumor against nature by the aboundance of a waterish humor, or flatulencies, or Phlegme, gathered one while in all the habite of the body, otherwhiles in some part, and that especially in the capacity of the belly betweene the Peritoneum and entrailes. From this distinction of places and matters there arize divers kinds of Dropcies.

First that Dropsic which fills that space of the belly, is either moist or dry. The moist is called the Afiites, by reason of the similitude it hath with a leather bottle, or Dorachis, because the waterish humor is contained in that capacity, as it were in such a vessel.

The dry is called the Tymanites, or Timpany, by reason the belly swolne with wind, sounds like a (Tymanum) that is, a Drum. But when the whole habit of the body is distended with a Phlegmaticke humor, it is called Aupsars or Leneophlogmatia. In this last kind of Drop sic the lower parts first swell, as which by reason of their site are more subject to receive defluxions, and more remote from the fountain of the native heat; wherefore if you press them downe, the print of your finger will remaine sometime after; the patient's face will become pale and puffed up, whereby it may be distinguished from the two other kinds of Drop sic. For in them first the belly, then by a certaine consequence the thighes and feet doe swell. There are besides also particular Dropcies contained in the braine bounds of certaine places, such are the Hydrocephalus in the head; the Bronchocele in the throat; the Pleurocele in the Cheft; the Hydroscele in the Scrotum, or Cod; and so of the rest. Yet they all arize from the same cause; that is, the weakness or defect of the
the altering or conceited faculties, especially of the liver, which hath beene caused by a Smyrhus, or any kinde of great distemper, cheefily cold, whether it happen primarily, or secondarily by reason of some more distemper dissipating the native and inbred heat, such a Dropsie is uncerurable; or else it cometh by content of some other higher or lower part; for if in the Lungs, Midriffe, or Reines there be any distemper, or disease bred, it is easie communicatid to the gibbous part of the Liver by the branches of the hollow veine, which runne thither. But if the mifchies proceed from the Spleene, Stomache, Meleentery, Guts, especially the jejunum and ileum, it cometh into the hollow side of the Liver by the mefeentery veines, and other branches of the Feus porto or Gate-veine. For thus such as are troubled with the Abhime, pitifiek, Spleene, Laundife, and also the Phrenie, fall into a Dropsie.

Lastly, all such as have the menstruall or hemmorhoidall blood suppressed or too immoderately flowing contrary to their custome, either overwhelmes, diminisheth or extinguisheth the native heat; no otherwise than fire, which is suffocated by too great a quantity of wood, or dieteth and is extinguished for want thereof. We must look for the lame from the excrements of the belly or bladder, caft forth either too sparingly or too immoderately: Or by too large quantity of meates too cold, and rashly devoured without any order; To conclude by every defect of external causes, through which occasion, error may happen, in diet or exercis.

The signs of the胗tes is distinguishing from the two other kinde of Droppies, both by the magnitude of the efficient cause, as also by the violence of the Symptomes, as the defteeted appetite, thirst, and swelling of the Abdomen. And also when the body is moved or turned upon one side, you may heare a sound as of the jogging of water in a vessell half full. Lastly the humor is diversely driven upwards or downwards, according to the turning of the body and compression of the Abdomen; It also causeth various Symptomes by preffe of the parts to which it floweth. For it causeth difficulties of breathing and the cough by pressing the Midriffe, by sweating through into the capacity of the Chest it causeth like Symptomes as the Empyema. Besides also the Patients often seeme, as it were, by the ebbing and flowing of the waterish humor, one while to be carriied to the skies, and another whiles to be drowned in the water, which I have learnt not by reading of any author, but by the report of the patients themselves. But if these waterish humors be fallen downe to the lower parts, they suppress the excrements of the Guts and bladder by pressing & straining the passages. When the patient lies on his backe the tumor seemeth leffe, because it is spread on both sides; On the contrary when hee stands or sitteth, it seemeth greater, for that all the humor is forced or driven into the lower belly, whence hee feeleth a heavines in the Pellen or shote. The upper parts of the body fall away by defect of the blood fit for nourishment in quality and consistence, but the lower parts swell by the flowing worse of the Serous and waterish humor to them. The pulfe is little, quick, and hard with tention.

This disease is of the kinde of Chronicall or long diseases; wherefore it is fierce, or never cured, especially in those who have it from their mothers wombe, who have the Action of their Stomache depravod, and those who are cachecticked, old, and lastly all such as have the natural faculties languishing and faultrie.

On the contrary young and strong men, especially if they have no Feaver, and finally all who can endure labour and those exercis which are fit for curing this disease, easie recover, principally if they use a Phylition before the water which it gathered together doe putrefie and infect the bowells by its contagion.


He beginning of the cure must be with gentle and mild medicines; neither must we come to a Paracentesis, unless we have formerly used and tried these. Therefore it shall be the part of the Physician to prescribe a drying diet, and such medicines as carry away water, both by stool and urine. *Tartar emetic* orders this powder for Hydropticke persons. *R. Canthar, abietis et alis*; of which administer two grains in white wine, for nature helped by this, and the like remedies hath not seldom beene found to have cured the drophie. But that we may haften the cure, it will be available to raise up the native heat of the part by application of those medicines which have a dissolving force: as bagges, baths, ointments, and emplasters.

Let bagges be made of dried and hard bran, Oats, Salt, Sulphur, being made hot, or for want of them, of Sand, or Ashes often heated.

The more effectual baths are salt, nitrous, and sulphurous waters, whether by Nature or Art, that is, prepared by the dissolution of Salt, niter, and Sulphur; to which, if Rue, Marjoram, the leaves of Fenel, and tops of Dill, of stachus, and the like be added, the use will goe better forwards. Let the ointments be made of the oyles of Rue, Dill, Baies, and Squills, in which some *Euphorbium*, *Pellitory of Spaine*, or *Pepper* have beene boiled. Let plasters be made of Frankincense, *Myrrhe*, *Turpinine*, *Coffus*, *Baiberies*, *English galengall*, *hony*, the dung of Oxen, *Pigeons*, *Goats*, *Horses*, and the like, which also may be applied by themselues. If the disease continue, we must come to the distinctly chiefe remedy, that is, *Paracentesis*. Of which because the opinions of the ancient Physicians have beene divers, we will produce and explain them.

Those therefore which disallow Paracentesis, conclude it dangerous for these reasons. The first is, because by pouing out the contained water, together with it, you dissipate and dissolve the spirits, and consequentely the natural, vital, and animal faculties; another opinion is, because the Liver wanting the water by which formerly it was borne up, there hanged downe by its weight; a drie cough, and a difficultie of breathing proceede. The third is, because the substanse of the Peritoneum, as that which is nervous, cannot be pricked or cut without danger, neither can that which is pricked or cut be easily agglutinated and united, by reason of the spermatique and bloudy nature thereof, *Erasistratus* moved by these reasons condemned Paracentesis as deadly; also he perfwaded that it was unprofitable for these reasons, *viz.* because the water poured forth, doth not take away with it the cause of the Drophi, and the distemper and hardneffe of the Liver, and of the other bowels, whereby it comest to paffe that by breeding new waters they may easie againe fall into the Drophi. And then the feaver, thirft, the hot and drie distemper of the bowels, all which were mitigated by the touch of the included water, are aggravated by the absence thereof, being poured forth; which thing *lecometh to have moved Avicen and Jordanus* that he laid none; the other laid very few lived after the Paracentesis; but the refutation of all such reasons is very eafe.
For, for the first Galen infers, that harmful full dispersion of spirits, and resolving the faculties happens, when the Paracentesis is not diligently, and artificially performed, as in which the water is presently poured forth; truly if that reason have any validity, Phlebotomy must seem to be removed far from the number of wholesome remedies, as whereby the blood is poured forth, which hath farre more pure and subtle spirits, than those which are said to be diffused and mixed with the Dropsic waters.

But that danger which the second reason threatens shall easily be avoided; the patient being desired to lie upon his back in his bed; for the Liver will not hang down. But for the third reason, the fear of pricking the Peritoneum is childish; for those evils which follow upon wounds of the nervous parts, happen by reason of the exquise fence of the part, which in the Peritoneum ill affected and altered by the contained water, is either none or very small. But reason and experience teach, many nervous parts, also the very membranes themselves being farre removed from a fleflic substance, being wounded, admit a certaine much more the Peritoneum, as that which adheres so straitly to the muscles of the Abdomen, that the difficer cannot separate it from the flesh, but with much labour. But the reason which seems to argue the unprofitablenesse of the Paracentesis is refelled by the authority of Celsius. I, faith he, am not ignorant that Erasistratus did not like Peracentesis; for he thought the Dropsie to be a disease of the Liver, and so that it must be cured, and that the water was in vain let forth, which the Liver being vitiated, might grow againe. But first this is not the fault of this bowell alone, and then although the water had its originall from the Liver, yet unlefe the water which floweth there contrary to nature being evacuated, it hurrieth both the Liver, and the rest of the inner parts, whilst it either encreaseth their hardness, or at the leaft keepeth it hard, and yet notwithstanding it is fit the body be cured. And although the once letting forth of the humor profit nothing, yet it make way for medicines, which while it was there contained, it hindered. But this feros, fale, and corrupt humor, is so farre from being able to mitigate a Fever and thirst, that on the contrary, it encreaseth them. And also it augmenteth the cold Diftermer, while yet by its abundance it overwhelmeth and extinguiheth the native heat. But the authority of Celsius Aurelianus that most noble Philition, though a Methodicke, may satisfie Actiems and Gordonius. They, faith he, which dare avouch that all such as have the water let out by opening their belly have died, doe lie; for we have seen many recover by this kind of remedy: but if any died, it happened either by the default of the flaw or negligent administration of the Paracentesis. I will addde this one thing which may take away all error of controversie: we unwisely doubt of the remedy when the patient is brought to that necessity, that we can only helpe him by that meanes. Now must we shew how the bellow ought to be opened. If the Dropsie happen by fault of the Liver, the section must be made on the left side, but if of the Spine, in the right: for if the patient should lie upon the side which is opened, the paine of the wound would continually trouble him, and the water running into that part where the section is, would continually droppe, wherein would follow a dissolution of the faculties. The Section must be made three fingers breadth below the Navel, to wit, at the side of the right mufcle, but not upon that which they call the Linea Alba; neither upon the nervous parts of the rest of the muscles of the Epigastrium; that so we may prevent paine and difficulty of healing. Therefore wee must have a care that the patient lie upon his right side, if the incision be made in the left, or on the left, if on the right. Then the Chirurgeon both with his owne hand, as also with the hand of his fervant affisting him, must take up the skine of the bellow, with the fleflic pannicle lying under it, and separate them from the rest; then let him divide them so separated with a Section even to the fleflic lying under them, which being done, let him force as much as hee can the devided skine upwards towards the stomack, that when the wound, which must presently be made in the fleflic lying there under, shall be confolidated, the skine by its falling therein, may ferve for that purpose: then therefore let him divide the mufcles and Peritoneum with a small wound, not hurting the Coll or Guts.
JLib»8.

Of Particular Tumors against Nature.

Then put into the wound a trunke, or golden, or silver crooked pipe, of the thicknesse of a Goofes-quill, and of the length of some halfe a finger. Let that part of it which goes into the capacity of the belly have something a broad head, and that perforated with two small holes, by which a flying being hardened, it may be bound to about the body, that it cannot be moved, unless at the Chirurges pleasure. Let a (pange be put into the pipe, which may receive the dropping humor, and let it be taken out when you would evacuate the water; but let it not be powred out all together, but by little and little, for fear of diffipation of the spirits, and resolution of the faculties, which I once saw happen to one sick of the Droptie. He being imbasted of the disease and cure thereof, thrust a Bodkin into his belly, and did much rejove at the pouring forth of the water, as if he had bin freed from the humor and the disease, but died within a few hours, because the force of the water, running forth, could by no means be stayed, for the incision was not artificially made. But it will not be sufficient to have made way for the humor by the means aforementioned, but also the external orifice of the pipe must be stopped and strengthened by double cloathes, and a strong ligature, lest any of the water flow forth against our wills. But we must note that the pipe is not to be drawn out of the wound, before as much water shall be issued forth as we desire, & the tumor requircht; for once drawn forth, it cannot easily be put in againe, and without force & paine be fitted to the lips of the wound, because the skin and fleshy pannicle cover it by their falling into the wound of the flesh or muscle. But whilesthe water is in evacuation, we must have a diligent care of feeding the Patient, as also of his streight, for if that fail, and he seem to be debilitated, the effusion of the water must be stayed for some days; which at the length performed according to our desire, the wound must be so consolidated that the Chirurgeon beware it degenerate not into a Fistula.

The Figure of a Pipe in forme of a Quill, to evacuate the water in Dropties.

Others performe this business after another manner, for making an incision, they thrust through the lips of the wound with a needle and threed; but they take up much of the fleshly substance with the needle, leaft that which is taken up should be rent and torn by the forcible drawing of the lippes together. Then the threed it selfe is wrapped up and downe over both ends of the needle, so thruf through, as is usuall done in a hare-lippe, that so the lippes of the wound may so closely cohere, that not a drop of water may get out against the Chirurgeon will. Sometimes such as are cured and healed of the Droptie, fall into the laundie, whom I usually cure after this manner. R. flere, aniter, 5ij, dissolve it in 5ij, vitri ab, colorim. A medicine for the laundies.

C H A P. XIII.

Of the tumor and relaxation of the Navell.

He Examples of swelling of the Navell, is caused by the Peritoneum, either relaxed or broken: for by this occasion oftentimes the Guts, and oftentimes the Kall, fall into the seat of the Navell, and sometimes superfluous flesh is there generated; otherwise this tumor is as an Amearhuma by too great a quantity of blood powred forth in that place: otherwise by a flatulent matter, and sometimes by a waterish humor. If the humor be occasioned by the Kall, the part it selfe will retaine his proper colour, that is, the colour of the skinne, the tumor will be soft and almost without paine, and which will refite without noise, either by the preffure of your fingers, or if it selfe when the Patient lieth on his backe, but the D d tumour
tumor caused by the guts, is more unequal, and when it is forced in by the preflure of your fingers, there is such a noise heard, as in the Enteroccele; but if the tumor proceeds of superfluous flesh, it will be harder and more stubborn, not easily entering into the body, although the patient lie upon his back, and you prefer it with your fingers.

The tumor is softer which proceeds of wind, but which will not retire into the body, and founds under your nails like a taber. If the swelling be caused by a watery humor, it hath all things common with the flatulent tumor, except that it is not so fisible, and without noise. If it be from effusion of blood, it is of a livid colour, but if the effused blood shall be arterial, then there are the signs of an Anemurium. Wherefore when the tumor is caused by the Guts, Kall, wind, or a watery humor, it is cured by Chirurgery: but not if it proceede from a fetthie excrescence or effusion of blood. The tumor of the Navell proceeding from the Kall, and Guts, must with your fingers be forced into their due place; then the skin with which the tumor is circumferibed must be taken up with your fingers, and thrust through with a needle, drawing after it a double twined and strong thread; then it must be fcarfed about the sides, that so it may be the eaiser agglutinated. Then must it be thrust through with a needle, three or foure times, according to the manner and condition of the distemion and tumor. And to twitch it strongly with a thread, that the skin which is so bound may at length fall off together with the ligatures. But all you may cut off the skin so diffended even to the ligature, and then cicatrize it, as shall be fit. A flatulent tumor of the Navell shall be cured with the same remedies, as we shall hereafter mention in the cure of a windy rupture, but the watery may be powred forth by making a small incision. And the wound shall be kept open, fo long, untill all the water be drained forth.

There are three sorts of Ruptures.

\[\text{By the guts,}\]

\[\text{By the blood.}\]

\[\text{By wind.}\]

\[\text{By a watereif humor,}\]

\[\text{Which may be cured by Chirurgery.}\]

\[\text{The cure by Chirurgery.}\]

The ancient Phisitians have made many kindes of Ruptures, yet indeede there are only three to be called by that name, that is, the Intestinalis, or that of the guts; the Zirbdis, or that of the kall, and that which is mixed of them both. The other kindes of Ruptures have come into this order, rather by similitude, than any truth of the thing; for in them the Gut, or Kall doe not forsake their places.

The Greeks have given to all these several names, both from the seat of the tumor, as also from their matter. For such they have called an unperfect rupture which defends not beyond the Grone, nor falls downe into the Codde, Subumence: but the compleat which penetrates into the Codde, if it be by falling downe of the Gut, Enteroccele; if from the Kall, Eppisocelle; if from them both together, they name it Enteroccelle: but if the tumor proceede from a watereif humor, they term it Hydroroele; if from wind, Physocele, if from both, Hydroyphocele; if a fetthie excrecence shall grow about the tefticle, or in the subftance thereof, it is named Sarcoecele. If the veins interwoven, and divaricated diversie ways shall be swollen in the Codde and Tefticles, the tumor obains the name of a Cirroccele. But if the humors shall be shut up, or lent thither, the name is imposed upon the tumor, from the predominant humor, as we have noted in the beginning of our Traaate of tumors. The causes are many, as all too violent motions, a stroke, a fall from a high place, vomiting, a cough, leaping, riding upon a trotting horse, the sounding of trumpets, or hackbuts, the carrying, or lifting vp of a heavy burden, racking, all the too immoderate use of vificide and flatulent meates; for all such things may either relaxe or brake the Fortunaum, as that which is a thime and extended membroane. The figures of a Subumence are round tumor in the Grone, which preffed, is easly forced in. The figures of an Enteroccele, are a hard tumor in the Codde, which forced, returneth backe and departs.
L.Ib.8.  Of Particular Tumors against Nature.

...parthen with a certaine murmour and paine, but the tumor proceeding of the Kall, is laxe and frutes soft like Wool, and which is more difficultly forced in, than that which proceeds from the Guts, but yet without murmuring and paine: for the substance of the Guts, seeing its one, and continued to its self, they doe not mutually feececole each other, but by a certaine conuenience doe, in adance draw each other, to avoid diffentation, which in their membraneous body cannot be without paine, by reason of their change of place from that which is natural, into that aginst nature: none of all which can befall the Kall, seeing it is a flupide body, and almoit without fence, heavy, dull, and immovable. The signes that the Peritoneum is broken, are the sudden increas of the tumor, and a sharpe and cutting paine; for when the Peritoneum is onely relaxed, the tumor grows by little and little, and so conueniently with small paine; yet such paine returns to often, as the tumor is renewed by the falling downe of the Gut, or Kall, which happens not the Peritoneum being broken: for the way being once open, and passable to the falling body, the tumor is renewed without any disention, and so without any paine to speake of. Thereof the signes shall be handled in their places. Sometimes it happens that the Guts, and Kall, do firmly adhere to the proffesse of the Peritoneum, that they can not be driven back into their proper leare. This stiborne adhesion happens by the intervention of the vifeide matter, or by means of some excoriacion caused by the rude hand of a Chirurgeon, in too violently forcing of the Gut, or Kall, into their place. But also, too long day of the gut in the codde, and the neglect of wearing a Truffe, may give occasion to such adhesion. A perfect and inverter rupture by the breaking of the proffesse of the Peritoneum in men of full growth, never, or very seldom admits of cure. But what rupture of Peritoneum, the Guts may fall into the codde, to the bignesse of a mans head, without much paine and danger of life, because the excrements, as they may easilly enter, by reason of the largeness of the place and rupture, fo also they may easilly returne.

Chap. XV.  Of the cure of Ruptures.

Beacause children are very subject to Ruptures, but those truly not felthy or varicious, but watry, windy, and especially of the Guts, by reason of continual and painfull crying and coughing: Therefore in the first place we will treat of their cure. Wherefore the Chirurgeon, called to restore the Gut which is fallen down, shall place the child, either on a table, or in a bed, so that his head shall be low, but his buttocks, and thighs higher; then shall he force with his hands by little and little, and gently, the Gut into its proper place; and shall foment the Groine with the astringent fomentation, described in the falling downe of the wombe. Then let him apply this remedy, R, Praefcript. decollationis quantum An astringent fufficit, forina burdis & tabarum, &c. pulbere, Alis, Mastiches, Myrrhy, & Sarcoce, &c. as Boll. Armenti &c. Let them be incorporated and made a cataplasm according to Art. For the same purpose he may apply Emplastrum contra Rupturam: but the chief of the cure consists in folded clothes, and Trusses, and ligatures artificially made; that the restored gut may be contained in its place, for which purpose he shall keep the child feated in his cradle for 30. or 40. days, as we mentioned before, and keepe him from crying, scolding, and coughing. After he hath keepe paper 3. days in wate, and apply it in sheath into a ball to the groine, the gut being first put up by that remedy by 3. days adhesion will keep it from falling down. But it will be, as I suppose more effectual, if the paper be steeped not in common, but in the astringent wate, described in the falling downe of the wombe. Truely I have healed many by the helpe of such remedies, and have delivered them from the hands of Gelders, which are greed of childrens feethus, by reason of the great paine they receive from thence. They by a constant promise of Goldens, the crafty cozenage, persuade the Parents, that the falling downe of the Gut into the Codde, is uneasurable: which thing notwithstanding, experience convinceth to be false, if to be the cure be performed according to the afo mentioned manner, when the Peritoneum is onely relaxed, and not broken: for the proffesse ther. by which

D 3
the Gut doth fall as in a seep way, in progress of time and age is strained and knit together, whilst also in the mean time the guts grow thicker.

A certaine Chirurgion who delieveth credit hath told me that he hath cured many children as thus: He beateth a loadstone into fine powder, and giveth it in poppe, and then hee annointeth with hone the Groine, by which the gut came out, and then flrewed it over with fine filings of iron. He administrated this kind of remedy twentie or twelve dayes: The part, for other things, being bound up with a ligature and trussens was fitting. The efficacie of this remedy seemeth to consist in this: that the loadstone by a natural desire of drawing the iron which is flrewed upon the Groine, joyntes to the fleshly and fatty particles interposed betweene them, by a certaine violent impetuousity, which on every side prevaling and bending the loofenesse of the Peritoneum, yea verily adjoyning themselves to it, in progress of time by a firme adhesion intercept the passinge and falling downe of the Gut or Kall, which may seeme no more abhorring from reason, than that we behold a stone through the thickefl of a table, to draw iron after it any way. The same Chirurgion affirmed, that hee frequenly and happily used the following medicine. Hee burnt into a pie in an Oven red Snails, shut up in an earthen pot, and gave the powder of them to little children in poppe, but to those which were bigger in breadth.

But we must despaine of nothing in this diseaue, for the cure may happily proceede in men of full growth, as of fourtie yeare old, who have filled the three demensions of the body, as this following relation testifieth.

There was a certainPriest in the Parish of Saint Andrews, called John More, whose office it was to sing an Epistle with a loud voice as often as the solemnitie of the day, and the thing required. Wherefore seeing he was troubled with the Enteroccele, he came to me, requiring help, saying he was troubled with a grievous paine, especially then, when he stretched his voice in the Epistle.

The Figure of a man broken on one side, wearing a Truffe, whose bolster must have three Tuberosities, two on the upper, and one on the lower part: and there must be a hollowesse betweene them in the middle, that they may not too straitly press the shavellbone, and so cause paine. The manner of such a Truffe, I found out not long agoe, and it seemed better and safer than the rest for to hinder the falling aworde of the Gut and Kall.

When I had seen the bignesse of the Enteroccele, I perswaded him to get another
to serve in his place; for having gotten leave of M. Curio Clearke, and Deacon of Divinity, he committed himself unto me: I handled him according unto Art, and commanded him he should never goe without a Trufe; and he followed my directions. When I met him some five or six yeares after, I asked him how he did, he answered very well, for he was wholly freed from the diseafe with which he was formerly troubled, which I could not persuade my selfe of, before that I had found that he had told mee the truth, by the diligent observation of his genitals. But some fixe moneths after, he dying of a Pleurifie, I came to Curio's house where hee died, and desired leave to open his body, that I might observe whether nature had done any thing at all in the passage through which the gut fell down. I call God to witnesse, that I found a certaine fatty subftance about the process of the Peritoneum about the bignesse of a little egg, and it did stick so hard to that place, that I could scarce pull it away without the rending of the neighbouring parts. And this was the speedy cause of his cure. But it is most worthy of observation, and we must with admiration, that Nature but a little helped by Art, healeth diseases which are thought incurable. The chiefe of the cure consists in this, that we firmly lay the gut in its place, after the same manner as these two Figures shew.

Another Figure of a man having a Rupture on both sides, shewing by what means, what kind of Trufe, and what shoulder-band he must be bound on each Greene.

A. Sheweth the shoulder-band divided in the middle for the putting through of the head.
B. The Trufe, with two bottlers, betweene which is a hole for putting through the yards. The forme of both bottlers ought to be the same with the former.

In the meane time we must not omit diet. We must forbide the use of all things, which may either relaxe, dilate, or break the process of the Peritoneum, of which I have already treated sufficiently. Sometimes, but especially in old men, the guts cannot be restored into their place by reason of the quantity of the excresments hardened in them: In this case they must not be too violently forced, but the Patient must be kept in his bed, and lying with his head low, and his knees higher up; let the following Cataplaumes be applied.

Let them be boiled in faire water, afterwards beaten, and drawne through a straie.
feared, adding thereto of new Butter without salt, and ycle of Lillies, as much as shall suffice. Make a Cataplasm in the forme of a liquid pulis. Let it be applied hot to the Codde, and bottome of the belly; by the helpe of this remedy when it had beene applied all night, the guts have not seldom beene freee of themselves, without the hand of a Chirurgion, to have returned into their proper place. The windines being resolved, which hindered the going bace of the excrements into another gut, whereby they might be evacuated and expelled. But if the excrements will not goe backe thus, the flatulencies, yet resifiting and undisseased, an emollient and carminative Clyster is to be admited with a little Chymicall ycle of Turpentine, Dill, Juniper or Fennill. Clysters of Muscadine, ycle of Wallnuts and Aqva viva, and a small quantitie of any of the aforesaid ycles are good for the same purpose.

It often happens that the guts cannot yet be restored, because the proceffe of the Peritoneum is not wide enough. For when the excrements are fallen downe with the gut into the codde; they grow hard by little and little, and increafe by the accesse of flatulencies caused by resolution, which cause such a tumor as cannot be put up through that hole, by which a little before it fell downe: whereby it happens that by putrification of the matter there contained, come inflammations, and a new accesse of paine; and lafliy, a vomitting and evacuation of the excrements by the mouth being hindered from the other passage of the fundament. They vulgarly call this Miferere mei. That you may helpe this symptome, you must rather apply extreme remedies, than suffer the Patient to die by so filthy and loathsome a death. And we must cure it by Chirurgery after this manner following. We will bind the Patient lying on his backe, upon a Table or Bench; then presently make an incision in the upper part of the codde, not touching the substance of the guts; then we must have a silver Cane or Pipe, of the thickeffe of a Goose quill, round, and gibbous in one part thereof, but somewhat hollowed in the other, as is shewed by this follow¬

The Figure of the Pipe or Cane:

We must put it into the place of the incision, and put it under the production of the Peritoneum being cut together with the codde, all the length of the production; so that with a sharpe knife we may divide the proceffe of the Peritoneum, according to that cavity separatd from the guts there contained, by the benefit of the Cane in a right line not hurting the guts. When you have made an indifferent incision, the guts must gently be put up into the belly with your fingers, and then so much of the cut Peritoneum must be fowed up, as shall seeme sufficient, that by that passage made more strait, nothing may fall into the Codde, after it is cicatrized.

But if there be such abundance of excrements hardned, either by the flay or heat of inflammation, that that incision is not sufficient to force the excrements into their place, the incision must be made longer, you Cane being thrust towards the belly: so that it may be sufficient for the free regresse of the guts into the belly. Then saw it up as is fit, and the way will be shut against the falling downe of the guts or kall; the proceffe of the Peritoneum being made more strait, by reason of the future, for the rest, the wound shall be cured according to Art. But before you undertake this worke, consider diligently whether the strength of the Patient be sufficient, neither attempt anything before you are told, and declared the danger to the Patients friends.

CHAP.
Of the golden Ligature, or the Pandelus Aureus, as they call it.

If the Rupture will not be cured by all these means, by reason of the great solution of the continuity, or broken Peritonaeum, and the Prateine by the consent of his friends there present, is ready to undergo the danger in hope of recovery; the cure shall be attempted by that which they call the Pandelus Aureus, or Golden tie.

For which purpose a Chirurgion which hath a skilfull and sure hand, is to be imploied. He shall make an incision about the share bone, into which he shall thruth a Probe like to the Cana, a little before describ'd, and thruth it long wayes under the proceffe of the Peritonaeum, and by lifting it up, separate it from the the adjoining fibrous, and nervous bodies, to which it adheres; then presently draw aside the spermaticke vessels, with the Cremafler, or hanging muscle of the testicle, which being done, he shall draw aside the proceffe it selfe, alone by it selfe: And he shall take as much thereof, as is too lax, with small and gentle mullets, perforated in the middlet, and shall with a needle, having five or fixe threads, thruth it through as neere as he can to the spermaticke vessels, and cremafler muscles. But the needle also must be drawne againe into the middlet of the remnant of the proceffe, taking up with it the lips of the wound; then the thread must be tied on a strait knott, and so much therof must be left after the feacion, as may be fit to hang out of the wound. This thread will of it selfe be dissolv'd by little and little by putrefa^ion: neither must it be drawne out before that nature shall regenerate and restore flesh into the place of the ligature, otherwise all our labour shall be spent in vaine.

And laftly, let the wound be clenfed, filled with flesh, and cicatrized, whose callous hardneffe may withstand the falling of the gut, or kall.

There are some Chirurgians who would performe this golden Ligature after another manner. They cut the skinne above the share bone where the falling downe commonly is, even to the proceffe of the Peritonaeum, and they wrap once or twice about it, being uncovered, a small golden wyre, and onely straiten the paffage as much as may suffice, to mond the loofeness of this proceffe, leaving the spermaticke vessels at liberty. Then they twist the ends of the wyre twice or thrice with small mullets, and cut off the remnant thereof; that which remains after the cutting, they turn in, leaft it should prickt the fleeb growing upon it. Then leafting the golden wyre there, they cure the wound like to other simple wounds, and they keepe the Patient some fifeene or twenty day in his bed, with his knees fome thing higher, and his head fome thing lower.

Many are healed by this means; others have fallen againe into the difeaze by reacon of the ill twisting of the wire.

There is also another manner of this golden tie, which I judge more quicke and safe, even for that there is no external body left in that part after the cure. Wherefore they wrappe a leaden wyre in steade of the golden, which comes but once about the proceffe of the Peritonaeum, then they twine it as much as neede requires, that is, not too loofely, leaft it should leave way for the falling downe of the body, neither too straitly, leaft a Gangrene should come by hindring the paffage of the spirits and nourishment. The ends thereof are sufferd to hang out; when in poffee of time, this contradition of the Peritonaeum seemes callous, then the wyre is unwiffed and gently drawne out. And the rest of the cure performed according to Art. But let not the Chirurgion thrust himselfe upon his worke rashly, without the advice of the Phyfician, for whene itt comes to paffe, that the testicles are nor as yet fallen downe into the Codde by the too great fuggifhneffe of nature, in some of a prett[y growth, but remains long in the groines, causing a tumor with paine, which thing may make a good Chirurgion beleive that it is an Enterocele. Therefore whilst he labours by repelling medicines and truffes to force backe this tumor, he increaseth the paine, and hinders the falling downe of the testicles into the codde. To served
A History.---

Served this not long agoe in a Boy, which an unskilfull Chirurgion had long, and grievously troubled; as if he had had a rupture: for when I had observed that there was but one stone in the Codde, and knew the Boy was yet well, I bid them cast away the plasters, and trifles, and write his Parents that they should suffer him to run and leap, that so the idling stone might be drawn into the Codde, which thing by little and little, and without paine, had the event, as I foretold. That the reason of this effect may be understood, we must know a man differs from a woman, only in efficacie of heat, but it is the nature of strong heat to drive forth, as of cold to kepe in. Hence it is that the stones in men hang forth in the codde, but in women they lie hid in the lower belly. Therefore it happens that in some males more cold by nature, the testicles are shut up for some time, untill at length they are forc'd down into the codde by youthfull heat. But that we may returne to our former treatise of the codde, altho' that way of curing ruptures wants not paine and danger, yet it is faire than that which is performed by gelding, which by the cruelty thereof exposes the Patient to manifest danger of death. For the Gelders whilst they feare lead when the cure is finisht, the relaxation may remaine, with violence the procefs of the Peristesnum from the part to which it adheres, and together with a nerve of the sixth conjuncation which runnes to the stones; they offer the same violence to the spermaticke vessels; by which things ensue great paine, convulsion, effluxus of blood, inflamation, putrefaction, and lastly death, as I have observed in many whom I have dissection, having died a few dayes after their gelding. Although some escape these dangers, yet they are deprived of the faculty of generation for all their life after; for performance whereof nature hath bestowed the testicles, as parts principally necessary for the conservation of mankinde. Through which occasion Galen hath not feared to preferre them before the heart; because the heart is the beginning of life, but the testicles of a better life; for it is farre more noble to live well, than simply and absolutely to live; therefore Eunuches degenerate into a womanish nature, for they...
remain without beards, their voice is weak, their courage fails them, and they turn cowards; and seeing they are unfit for all humane actions, their life cannot but be miserable. Wherefore I will never suffer the cutting out of the stones, unless a Sarcocele or Gangrene invade them. But that the way of performing the Pan. Thos sarces may be better known, I have thought good here to set the instruments, by which this operation is performed, before your view.

Another more safe and easy way to restore the Gut and Kall.

Heedrick and Guido have invented another way of performing this operation. They put back into their places the Gut and Kall being fallen downe, the Patient being so placed, that his thighs are high and his head is somewhat low; then they draw aside the lower portion of the production of the Peritoneum, and also the spermaticke vessels, and cremaster muscle to the Ichioin, then by applying a causticke fitted to the age and disease, they burne the other part of the procexe, directly perpendicular to the share-bone, where the Gut did fall downe. Then they pull off the eschar thus made with a knife even to the quicke, then they apply another causticke in the same place, which may go even to the bone, then procure the falling of this Eschar made on the foresaid procexe. And afterwards they heal the ulcer which remains, which pretendly contracting somewhat a thickse Callus, so keeps up the Guts and Kall, that it binds them from falling down into the Cod. This way of restoring the Gut and Kall, though it be safer and more facile; yet the Chirurgon must not attempt it, if the Guts or Kall stick so fast, agglutinated to the procexe of the Peritoneum, that they cannot be severed, nor put backe into their places (for from the guts so burnt and violated, greater mischief would ensue) if by the broken and too much dilated procexe, the bodies thereby restrained, make an exceeding great tumor by their falling downe; if the testicle yet lying in the groine as in a Bubo-noccele, a kind of Enterocele, being not yet descended into the Scrotum or Codde; if the Patients be not come to such age as they can keepthemselves from flitting, or hold their excrements whiles the operation is performed.

Of the cure of other kindes of Ruptures.

Piptocele is the falling downe of the Kall into the Groine, or Codde; it hath the same causes as an Enterocele. The signes have beene explained. It is not so dangerous, nor infer a consequence of so many evil symptoms, as the Enterocele doth yet the cure is the same with the other.

Hydrocele is a watervish tumor in the Codde, which is gathered by little and little betwixt the membranes encompassing the tefticles, especially the Darts and Erys- 

The signs.

shoides; it may be called a particular dropse, for it proceeds from the same cause, but chiefly from the defed of natue heat. The signes are a tumor encreasing floewly without much paine, heavy, and almoft of a glasse clearnesse, which you may perceive by holding a candle on the other side, by pressing the Codde above, the water flows downe, and by pressing it below, it riseth upwards, unless peradventure in too great a quantity it fills up the whole capacity of the Codde, yet it can never be forced or put up into the belly as the Kall or Guts may, for oft times it is contained in a Cyfle, or bagge; it is diftinguished from a Sarcocele, by the smoothnesse and equality thereof. The cure must first be tried with resolving, drying, and difcussing medicines, repeated often before, and in the Chapter of the Dropse; this which followes I have often tried and with good success.

A medicine to draw forth the contained water.
surgery; the Cod and membranes wherein the water is contained, must be thrust through with a Seton, that is, with a large three square-pointed needle, thred with a skeane of silk; you must thrust your needle presently through the holes of the multlets made for that purpose, not touching the substance of the Testicles. The skean of thred must be left there, or removed twice or thrice a day, that the humor may drop down, and be evacuated by little and little. But if the pain be more vehement by reason of the Seton, and inflammation come upon it, it must be taken away, and neglecting the proper cure of the diseafe, we must refit the symptoms.

Some Practitioners use not a Seton, but with a Razor, or incision knife, they open the lower part of the Cod, making an incision some half finge breath long, penetrating even to the contained water; always leaving untouched the substance of the Testicles and vessels, and they keep the wound open, until all the water seems evacuated; truly by this one way the cure of a watery rupture whose matter is contained in a Cyste, is safe, and to be expected, as we have said in our Treatise of Tumors in general.

The Fistulae is a flatulent tumor in the Codde, generated by the imbecility of heat resinding in the part. It is known by the roundness, lenity, tenitenie and thinning. It is cured by pre-scribing a convenient diet, by the application of medicines which dissolve and dis- cuffle flatulencies, as the seeds of Annis, Fennell, Fumugreke, Agnus Castus, Ruc, Origanum, other things set downe by Arisien in his Treatise of Ruptures. I have often used with good success for this purpose, Emplastrum Pigmentum mercuric, and Em-plastrum Discolithior, dissolved in some good wine, as Mufcadine, with oyle of Bayes.

The Vneumatoede is a flatulent tumor in the Codde, generated by the imbecility of heat resinding in the part. It is known by the roundness, lenity, tenitenie and thinning. It is cured by pre-scribing a convenient diet, by the application of medicines which dissolve and dis- cuffle flatulencies, as the seeds of Annis, Fennell, Fumugreke, Agnus Castus, Ruc, Origanum, other things set downe by Arisien in his Treatise of Ruptures. I have often used with good success for this purpose, Emplastrum Pigmentum mercuric, and Em-plastrum Discolithior, dissolved in some good wine, as Mufcadine, with oyle of Bayes.

The Cure.

What a Portion of the Testicle is.

The Cure.

What a Lacerated Testicle is.

The Cure.

What a Cyste is.

The Cure.

What a Cyste is.

The Cure.
let the needle be againe put after the same manner about the lower part of the same vein, leaving the space of two fingers between the Ligatures. But before you binte the thread of this lowest Ligature, the Paries must be opened in the middes, almost after the same manner as you open a vein in the arm to let blood: That to this gross blood cauing a tumor in the Cod, may be evacuated as is usually done in the Cure of the varietas. The wound that remains shall be cured by the rules of Art after the manner of other wounds: Leaving the threads init, which will presently fall away of themselves. To conclude then, it being growne callous especially in the upper part thereof, where the vein was bound, it must be Cicatrized, for so afterwards the blood cannot be strained, or run that way.

Hernia Humoralis is a tumor generated by the confused mixture of many humors in the Cod or betweene the tunicles which involue the testicles, often also in the proper substance of the tificles. It hath like caufes, signes and cure as other tumors. While the cure is in hand, rest, trustes, and fit rowlers to sustaine and bare up the testicles are to be used.

Chap. XVIII

Of the falling downe of the Fundament.

HEN the mufcle called the Spinifer which injuris the Fundament is relaxed, then it comes to paffe that it cannot sustaine the right gut. This diseafe is very frequent to Children by reason of the too much humidity of the belly, which falling downe upon that mufcle mollifieth and relaxeth it or prefeth it downe by an unacquainted weight, so that the mufcles called Levatores Ani or the lifters up of the Fundament, are not sufficient to bear up any longer. A great bloody flux gives occasion to this effed. A strong endeavour to expell hard excrements, the Hemorrhoides, which supprefled doe over-load the right gut, but flowing relaxe it: Cold as in those which goe without breeches in winter,or fit a long time upon a cold stone, a stroke or fall upon the Holy-bone: a palfie of nerves which goe from the Holy-bone to the Mufcles the lifters up of the fundament: The weight of the stone being in the bladder.

That this diseafe may be healed, we must forbid the Patient too much drinking too often eating of broth, and from feeding on cold fruits. For local medicines the part most be fomented with an astringent decoction made of the rinds of Pomegranets, galls, myrtles, knograte, sheepeherss puke, Cypresse nuts, Alume, and common Salt boyled in smithes water or red wine. After the fomentation, the gut be annointed with oy or Ic of Roses or myrtles, and then let it bee gently put by little and little into its place, charging the childe if he can understand your meaning, to hold his breath. When the gut shall be restored, the part must bee diligently wiped leaft the gut fall downe against by reason of the flipperine of the union, Then let the powder preferred for the falling downe of the womb be put into the fundament as farre as you can: Then you must straitly binte the lyones with a twathe, to the middle whereof behinde let another be fastned which may be tied at the Rubes comming along the Percinaem, to hold it up to the fundament, the better to containe it in its place, a punge dip in the astringent decoction. The Patient if he be of sufficient age to have care of himfelle, shall be withed when hee goes to ftoole that hee upon two pieces of wood being ferforae inch a fundet, leaft by his straying hee thrust forth the gut together with the excrement, but if he can doe it standing, hee shall never by straying thrust forth the gut.

But if the gut cannot by the prescribed meanes bee restored to its place, Hippocrates bids that the Patient hanging by the heelles be flaken, for so the gut by that flaking will returne to his place: but the fame Hippocrates wiheth to annoint the fundament, because that remedie having a drying faculty, hath also power

C  to  E
Of Particular Tumors against Nature.

Of the Paronychias.

Paronychia or Panaris is a tumor in the ends of the fingers, with great inflammation, coming of a maligne and venemous humor, which from the bones by the Peristium is communicated to the tendons and nerves of that part which it affecteth, whereof cruel and symptomatices doe follow, as pellifique paine, a feaver, torrefactive, so that the affected through impatiency of the paine are variously agitated like those tormented with Carbuncles; for which causeth Guido and Iohannes de Vigo judge this diseafl: to be mortal, wherefore you must provide a skilfull Phystian for the cure of this diseafl: which may appoint convenient diet, purging and Blood letting. In the meantime the Surgeon, shall make way for the virulent and venenous matter, by making incision in the inner part of the finger, even to the bone alenst the first joint thereof; for Pyla faith there is not a prefenter remedy if to be that it be quickly done and before the maturation of the matter, for it vindicates the finger from the corruption of the bone and nerves, and allfalse paine, which I have often and happily tried immediately at the beginning, before the perfect impression of the virulence.

But the wound being made you must suffer it to bleed well, then presently let him dip his finger in strong and warme vinegar, in which some trash being dissolved may draw forth the virulence. But to appease the paine, the same remedies must be applied to the affected part as are used in Carbuncles, as the leaves of Sorrell, Henbane, Hemlocke, Mandrake roasted under the Embers and beaten in a Morter with new Purgamentum Populense, or cyle of Rofes or new butter without fat; for such like medicines also helpe forward suppuration, whilest by their coldness, they refrefte the extraneous heat affeding the part; and fo strengthen the native heat being the author of suppuration: which reason moved the ancient Phystians to use such medicines in a Carbuncle; but if by reason of the fearefulness of the patient, or unskilfulness of the Surgeon, no incision being made, a Gangren and Sphacefl shall possesse the part, it remains that you cut off with your cutting malletts as much of the part as shall be corrupt, and performe the rest of the cure according to Art. Yet it doth not seldom happen that there may bee no neede to cut off such a finger, because it being corrupted together with the bone doth by little and little dissolve into a purulent or rather fanguine and much thinkeing filth. But in this affection there is often caufed an Eificar by the aduiliti of putrefcinous heat, and superfluous flesh inducing with mutt exquisit fence growth underneath it, which must in like manner be cut off with the Malletts that the part may receive comfort, the paine being awaged by the copious effusion of blood.

Of the Swelling of the Knees.

Fer long and dangerous diseafls there oftentimes rise Tumors in the knees, and also in plerorickke bodies and such as have evilly jouye after labours and exercife, This kind of diseafl is frequent because the humor easily failes into the part which hath beene heared by Labour. But if such
such tumors follow long diseases, they are dangerous and difficult to cure, and therefore not to be neglected; for bitter pain accompanies them, because the humor falling thither dilates the Membranes, which being many involve the part; besides that this humor partakes of a certain virulent and malignant quality whether it be cold or hot, when it hath settled into those parts, being such as we find in the pantes of the joyeys, and in the bitings of venemous creatures.

For the cure, if the tumor be caused by blood, let a slender and refrigerating diet be appointed, and phlebotomy for the resolution of the antecedent cause, and use local medicines shall be used according to the variety of the four times. But for to adwage the paine, anodyne or mitigating medicines shall be appointed; of all which we have sufficiently treated in the Chapter of the cure of a Phlegmon.

And because these parts are of exact fence, if there be necessity to open the tumor, yet must we not do it rashly or unconsiderately, for feare of pain and evil accidents.

This kind of tumor is oft times raised by wind contained there; in which case the Chirurgeon must be very prudent; that he be not deceived with the show of flowing of the humor, which he seemes to perceive by the pressure of his fingers, as if there were matter and humor contained therein, and so be brought to open the tumor. For the wind breaking forth in stead of the humor, causeth evil symptomes by reason of the section rashly made in a part so sensible.

But if watrid humors shall tumifie the part, the body shall first be purged with medicines purging flemme: And then incising, attenuating, rarifying, disteuffing and very drying local medicines shall be used.

Of which we have abundantly spoken in the Chapter of the Oidema. Yet this humor, divers times liyes deeper between the whistle bone and the joyne, which causeth it that it cannot be disteuffed and resolved by reason of the weakness of the part and defect of heat, so that the adventitious humor often moves and excludes the bones from their fente. As I have observed it to have happened to many.

In which case irrigations of red wine falling something high, whereby the force of the medicine may enter and more easily penetrate, are much commended.

CHAP. XXI.

Of the Dracunculus

Cannot chuse, but explaine in this place those things which may bee spoken of that kinde of tumor against nature, which by the ancients is called Dracunculus. The matter and reason of these hath beene variously handled by diverse Authours, so that hitherto we have nothing written of them to which wee may by right and with good reason ad

here as a firm foundation of their essence.

For first for Galens opinion, Lib. 6. de Lac. affect cap. 3. The generation, faith he, of those hayres which are evacuated by the Vrine is worthy no lesse admiration than the Dracunculi, which as they say, in a certaine place of Arabia breed in the legges of men being of a nervous nature and like worms in colour and thickenesse.

Therefore seeing I have heard many who have sayed they have seene them, but I my selfe never saw them; I cannot conjecture any thing exactly neither of their original nor essence.
Of particular Tumors against Nature.

Paulus Agineta writes that the Dracunculi are bred in India and the higher parts of Egypt, like worms in the mucous parts of man's body, that is, the arms, thighs and legs, and also crepae by the interscalen muscles in children with a manifest motion.

But whether they be creatures indeed, or only have the shape of creatures, they must be cured with a hot fomentation, by which the Dracunculi raised to a just tumor, may put forth itself and be pluckt away piece meal with the fingers: also suppuring Cataplasmes may be applied, composed of water, honey, whiate and barley meal.

Access being various, having no certainty whereon to reft, inclineth one while to this, and another while to that opinion: for now he speaketh of the Dracunculi as of creatures, then presently of a matter and humor shut up in a certain place, for the rest he rightly delivers the cure and offence of this disease, as we shall afterwards shew.

The cure of Rhafis.

Rhafis writeth, that when the part is lifted up into a blister, and the veine hath neath its egreffe, it is good for the patient to drink the first day halfe adramme of Sulphur, then the next day a whole dramme, the third day two drammes, and in like manner the place affected must bee fomented with Sulphur, for so that which lies hid will breake forth; that which shall come forth must be rolled in a pipe of lead, which may equal the weight of a dramme, so that it may hang downe, for the veine drawne by the weight will come more forth and when that which shall come forth is grown much and long, it must be cut off, but not by the roote, but so that a portion thereof may remaine and hang forth, to which the leaden pipe may be fastned, for otherwise it would withdraw itselfe into its skinne and its lurking hole, and so cause a putrid and maligne ulcer.

Therefore wee must gently meete with this diseaife, and the veine must be drawne by little and little out of the body untill it be all come forth that no worse thing happen but if by chance it shall happen that as much of the veine as shall come forth shall be cut off by the rootes, then the ulcer must be opened long ways with an incision knife, and that so that whatsoever remainse thereof may bee wholly taken away. Then for some days the part must be annointed with butter untill whatsoever of such a sub stance adheres, being consumed with putrefaction shall flow away. Then the ulcer must be cured with sarcoticke things.
Therefore Rhabis thus in the same text expresseth the same thing by diverse names, and armed with iron and lead, he comes to the cure thereof, as if he meant to encounter with some fierce beast.

Soranus the physician, who lived in the times of Galen, was of a quite contrary opinion, as Paulus Aegineta in the place being before cited, relates of him; as who denies the Dracunculus to be a living creature, but only a concretion of a certain small nerve, which feemes both to the physicians and patients to have some motion under the skinne.

Wherefore Soranus seems to have come nearer the truth than the rest, but yet not so, as thoroughly to understand, and know the essence of this diseafe; as we shall demonstrate hereafter.

Manardus writes, that the Dracunculi are generated of evil and unlaudable blood, grosie, hot, and melancholick, or of adult phlegme very much dried.

Curtius a most learned physician of our time, Lib. de Definitionibus, mediæ, denies any of our physicians to be able to say anything of the Dracunculi, because it is a disease so unfrequent in these our regions, that it is scarce ever met with in practice.

The Author of the Introduction, and Medicinall definitions, defines the Dracunculi to be a disease very like the Varies, then causing great paine, when increasing by little and little; it begins to bee moved: Therefore to bee cured after the same manner, and by the same method of Section and incision, as the varices are. Which thing chiefly seemes to have moved Guido to referre this kinde of disease to the Varices in his Tractate of Imposhumes, because it hath the same cause, and is healed with the same remedy as the varices.

But seeing that diverse names have beene imposed upon this disease by several writers, yet they all have expressely it by the name of a vein; for it is called by Avennis and Guido, Vena Medena, because it is a disease frequent in the City Medea: by Albucasis, Vena civile: Halilahus hath called it Vena famosa; others have called it Vena Criara or the legge veins. Truly the contrariety of so many opinions repugnant not onely amongst themselves, but also with themselves, causeth arguethow little certainty they had of the essence of this disease, who have written of it unto us: To which also this may be added, that none of the latter physicians have written any things thereof. For although Iacobs Dalechamphius a man most conversant in every part of Physicke, hath written much of this matter in his booke of the French Surgery which he set forth some years agoe: Yet he hath left us no fuller testimony of his industry, than that he was very diligent in collecting the writings of the Ancients concerning this thing, interposing no judgement of his owne, the better to assure us of a thing so controverted.

But my modesty cannot so containe me, but that I shall chuse rather to undergoe the censure of being thought too daring, than (as much as in me lyeth,) to suffer this question of the Dracunculi to remaine longer ambiguous and undecided. Therefore for the present, I will thus order it, that refusing the opinions of the Ancients I may strengthen by certaine reasons, my opinion of the essence and cure of this disease.

For first, that Dracunculi are no living things, nor like unto worms, nor of like generation as the flat worms of the belly, which was the opinion of Attius, is easy to disprove both by his writings, as also by reason it selfe. For he writes that the broad worm which hee calls Tania, is as it were a certaine Metamorphosis or transmutation of the inner tunicle of the small guttes, into a quicke living and moveable body.

Butto man everfayd, neither will he confesse that the Dracunculi have the materiall causes of their beginning from the tunicle of the vein, in which they are clofed, or from the fibers of a nervous body, to which often they are adjointed; but much leffe from the skinne under which they lie, may they draw their materiall causes of their originall.

Moreover, neither can there bee any generation of worms, nor of any other living creatures whatsoever, who have their originall from putrefaction, but of some original corruption of the waxy humour which they seeme to doe.
Of Particular Tumors against Nature.


unleas by the Corruption of some matter, of whose better and more benigne part, nature by the force of the vitall heat, produceth some animate body, as Arisiotle teacheth. Wherefore to produce this effect, it is fit the matter should have such a disposition to putrefaction as is required for the generation of such a creature as they would make the Dracaunculi to be. It is fit the helping caues should concur as assistants to the principals in the action. And it is meete the place should be opportune or fit.

But there may be many caues found which may give life to the Dracaunculi, for by the common content of all those who have written of them, their generation proceeds from an humour melancholick, terretriall and groffe, which by its qualities both by the first coldness and diriniff, as also by the second, that is Aciditie, is not only thought moft unfit of all others for putrefaction, but also is judged to resi putrefaction, as that which is caufed by heat and superfluous heat humidity. Besides, if the materiall caufe of this disease should be from an humour putrefying and turning by putrefaction into some living creature, it was fit there should be stench also, as being an unseparable accident of putrefaction, for thus the excrements in the guts of which the worms are generated, doe finel or flinke.

Therefore that which exhales from their bodies which are troubled with the Dracaunculi, should be fincking, as it happens to those sick of the Pthiriasis or Lice-scurf. But none of those who have delivered the accidents or symptomes of the Dracaunculi are found to have made mention hereof. But for the efficient caufe whereby so great heat may be rayed in the places next under the skin, by the efficacy whereof such a creature may be formed of a matter melancholick and moist unapt to putrifike, as they make the Dracaunculi to be who faie our bodies to be fruitful places for monsters, expecially seeing the surface of the body is continually ventilated by the small Arteries spread under the skin, as also by the benefit of insensible transpiration, and breathed with the caroles of the Aire incompafting us. But now the materiall and efficient caues being defective, or certainly very weak, for the generation of so laborious an effect, what coadjuvatory caue can yield assistance? Can the hot and dry temper chiefly breed this kinde of disease, and that it is not so frequent to moist bodies and such as are accustomed to the Bath, moist meats and wine moderately taken, but whether may the condition of the Aire of those regions in which it is as it were, an Endemiall disease, conferre any thing to the generation of such creatures? Certainly for this purpose a cloudy warme and thick air, such as arefeth at the beginning of the Spring when all places refound with frogs, toades and the like creatures bred of putrefation.

But on the Contrary, Arisiotle in the place before cited writeth, that meats of a hot and dry temper chiefly breed such a kind of disease, and that it is not so frequent to moist bodies and such as are accustomed to the Bath, moist meats and wine moderately taken, but whether may the condition of the Aire of those regions in which it is as it were, an Endemiall disease, conferre any thing to the generation of such creatures? Certainly for this purpose a cloudy warme and thick air, such as arefeth at the beginning of the Spring when all places refound with frogs, toades and the like creatures bred of putrefation.

But on the Contrary, Daischampius by the opinion of all the Phisicians that have written of the Dracaunculi, writes that this disease breeds in the.dry and Sun burnt regions of Indi and Araba; but if at the leaft that part of our body which is next under the skin should have any opportunity to engender and nourish such creatures, they may be judged to have writen that the Dracaunculi is a living creature with some probability. But if there be no opportunity for generation in that place, nor capacity for the nourishment of such kind of creatures as in the guts, if that region of the body be breathed upon with no warmeness and fmoothering heat, if it be defiled with none of the groffe excrements, as the guts usually are, but onely by the fubtiler exhalation, which have an easie and insensible transpiration by the pores of the skin, which may seeme to be a just caufe of so monftrous and prodigious an effect, but we shall little profit with these engines of reason unless we call downe at once all the Bulwarke, with which this old opinion of the Dracaunculi may fland and be defended.

For first they say, why have the ancients expressed this kind of disease by the name of a living thing, that is, of a Dracaunculus or little Serpens? I anfwere, because in Phisical names are often imposed upon diseases rather by familiar trade than from the truth of
of the thing; for the confirmation whereof, the examples of three diseases may suffice, that of the Cancer, Polypus, and Elephant. For these have those names not because any Crab, Polypus, or living Elephant, may breed in the Body by such like diseases, but because this by its propagation into the adjacent parts represents the feet and claws of a Crab; the other represents the flesh of the Sea-Polypus in its substance; and the third because such as have the Leprae have their skin wrinkled, rough, and hordid with scales and knots, as the skin of a living Elephant. So truly this disease of which we now inquire seems by good right to have departed the name Dracunculus, because in its whole conformation, colour, quality and productivity into length and thickness it expresseth the image of a Serpent. But whence, will they say (if it be without life) is that manifest motion in the matter? We reply that the humor the cause of this disease is subtil and hot, and so runneth with violence into the part whence it may seem to move. But when the Dracunculi are separated, why do they put their heads as it were out of their holes? we answer, in this the ancients have beene very much deceived, because after the suppuration the ulcer being opened, some nervous body being layed bare, thrust forth and subjected itself to the light, which by the convulsive and slaking motion might express the crooked creeping of a Serpent. But they will say, paine happens not unless to things indued with sense and life, but this Dracunculus when he is drawn too violently especially if he be broken, thereby will cause extreme paine: we do answer, that the conclusion doth not follow and is of no consequence, for these paines happen not unless when the unprovided Surgeon drawes or pulls instead of the Dracunculus some nervous or membranous body swollen and repleated with an intense humor, whence there cannot but be great paine that part being pull'd which is the author of sense. But it is childish to say that the Dracunculus seeles, for that it causeth sharpe paines to the living body in which it is. Therefore that at last we may determine something of the nature, essence and generation of these Dracunculi, I dare boldly affirme it is nothing else but a tumor and abscess bred from the heat of the blood in a venenat kind. Such blood driven by the expulsive facultie through the veins to the Externall parts, especially the limbs, that is the Arms and Legges, causeth a tumor round and long often stretched from the joint of the shoulder even to the wrist, or from the groine even to one of the Anckles with tension, heat, reticency, prickling paine, and a fever. But this tumor is at some times stretched forth straight, otherwheres into oblique and crooked tumors, which hath beene the cause that many taken with this kind of disease, and having their limbs so infolded as with the twinnings of a Serpent would say they had a Serpent. I have thus much to say of the Dracunculi, especially of those of our owne country.

For the cure, it is not unlike to the cure of a Phlegmon arising from a defluxion, for here also in like manner the remedies must be varied according to the four times of the disease, and the same rule of diet, phlebotomy and purging must be observed which is before prescribed in the cure of a Plegmon.

The mention of the Dracunculi calls to my memorie another kinde of Abscess, altogether as rare. This our French men name Criabes, I think a Criabem, I from hayrescit chiefly troubles children and prickes their backes like thorns; They toffe up & downe being not able to take any reit. This disease ariseth from small haires which are scarce of a pins length, but thinke thick and strong. It is cured with a fomentation of water more than warme, after which you must presently apply an oynament made of honey and wheaten flour; for soe these haires lying under the skin are allured and drawne forth; and being thus drawne, they must be pluckt out with small mullets. I imagine this kinde of disease was not knowne to the ancient Phisitians.

The End of the Eighth Books.
OF WOUNDS IN GENERAL.

THE NINTH BOOK.

CHAP. I.

What a Wound is, what the kindes and differences thereof are, and from whence they may be drawn, or derived.

Wound is a solution of Continuity, caused by a stroke, fall, or bite, newly done, bloody, and with putrefaction, and filth. They also call it a new simple ulcer, for the solution of continuity happens to all parts of the body, but according to the diversity of the parts, it hath divers names among the Greeks. For in the fifth it is called Helcos, in the bone Catagma, in the nerves Spasmo, in the ligament Thlasmo, in the vessels Apoplasmo, in the Muscles Regma; and that solution of continuity, which happens in the vessels, their mouths being open, is termed Anastomosis, that which happens by erosion, Anurosis; that which is generated by sweating and transpiration, Diapedesis. That these may be the more easily understood, I have thought good to describe them in the following table.

A Table of the differences of Wounds.

<table>
<thead>
<tr>
<th>From the nature of the parts in which they are made or happen.</th>
<th>Either similar and the same parts are</th>
</tr>
</thead>
<tbody>
<tr>
<td>The differences of wounds are drawn or taken.</td>
<td>Glandules, Fistulae, Fat,</td>
</tr>
<tr>
<td></td>
<td>Or hard as a Bone,</td>
</tr>
<tr>
<td></td>
<td>Or of a kind of the same substance</td>
</tr>
<tr>
<td></td>
<td>as the Ligaments, Membranes,</td>
</tr>
<tr>
<td></td>
<td>or the Glands, Arteries,</td>
</tr>
<tr>
<td></td>
<td>or the principal parts of the body.</td>
</tr>
<tr>
<td>For the organical and these either.</td>
<td>Principal as the Brain, Heart,</td>
</tr>
<tr>
<td></td>
<td>Liver, to which some ad the womb</td>
</tr>
<tr>
<td></td>
<td>and Testicles.</td>
</tr>
<tr>
<td>Or neither of the parts are drawn or taken.</td>
<td>Or serving the principal parts, as</td>
</tr>
<tr>
<td></td>
<td>The Heart, Lungs, Gallon, Stomach,</td>
</tr>
<tr>
<td></td>
<td>Gut, Bladder.</td>
</tr>
<tr>
<td></td>
<td>The Ears, Nose, Feet, Hands, and</td>
</tr>
<tr>
<td></td>
<td>other of the same kind.</td>
</tr>
</tbody>
</table>

Divers appellations of wounds according to the varieties of the parts.
Of Wounds in General.

From their proper offence, from whence they are called,

When there is no complication of any other disease or symptom besides,

Simple wounds.

Or compound.

When there is a complication of some one or more diseases, which unless they be taken away, we must not hope for to cure the wound.

From their quantity, according to which they are called,

Great.

Long.

Great Bread.

Short.

Indifferent.

Superficiarie.

Little.

Deep.

Oblique.

From their figure, according to which they are named.

Straight.

Cornered:

Chap. II.

Of the causes of Wounds.

All things which may outwardly affayle the body with force and violence, may be counted the causes of wounds, which are called greene, and properly bloody. These things are either animate, or inanimate. The animate, as the bitings, and prickings of beasts. The inanimate, as the stroake of an arrow, sword, club, gunne, stone, a dagger, and all such like things.

From the variety of such like causes, they have divers names: for those which are made by sharp and prickings things are called punctures: those caused by cutting things, are called wounds or gaffes: and those which are made by heavy and obtuse things are named Contusions, or wounds with Contusions.

Chap. III.

Of the signes of wounds.

Wounds are first knowne by sight, and by the signes drawne from thence.

Chap. II.

From their figure, according to which they are named.

Great.

Long.

Great Bread.

Short.

Indifferent.

Superficiarie.

Little.

Deep.

Oblique.

Cornered.

A caution for making an exact portrait of Wounds.

A flagging chemist of a Chirurgeon.
This (as Galen saith) is three ways to be known: The first is by the magnitude and principality of the part affected; for thus the wounds of the Braine, Heart, and of the greater vessels, though small of themselves, yet are thought great. Then from the great effect of the solution of continuity, for which cause wounds may be judged great, in which much of the substance of the part is lost in every dimension, though the part be one of these which are accounted servile. Then from the malignity; through which occasion the wounds of the joints are accounted great, because for the most part, they are ill condition ed.

CHAP. III.

Of Prognostickes to be made in Wounds.

Hole Wounds are thought dangerous, wherein any large Nerve, Veine, or Artery are hurt. From the first there is fear of convulsion, but from the other large effusion of the venous, or arterious blood, whence the powers are debilitated; also these are judged evil, which are upon the arm pits, groines, leskes, joynts and betweene the fingers; and likewise those which hurt the head or tail of a Muscle. They are least dangerous of all other which wound only the fleshy substance. But they are deadly which are inflicted upon the Bladder, Brain, Heart, Liver, Lungs, Stomacke and small guts. But if any Bone, Grifle, Nerve or portion of the cheeke or prepuce, shall be cut away, they cannot bee restored. Contuised wounds are more difficult to cure, than those which are only from a simple solution of continuity; for before you must thinke to heale them up, you must suppurate and cleanse them; which cannot be done in a short time. Wounds which are round and circular are so much the worse, for there can be no unity unless by an angle, that is, a meeting together of two lines, which can have no place in round wounds, because a circular figure consists of one oblique line. Besides, wounds are by so much thought the greater, by how much their extremes and lips are the further dis-jointed, which happens to round Wounds. Contrary to these are cornered wounds or such as are made along the fibers, as such as may bee easily healed.

Wounds may be more easily healed in young men, than in old, because in them nature is more vigorous, and there is a greater plenty of fruitfull, or good blood, by which the loss of the fleshy may be the better and more readily restored, which is flowlier done in an old body, by reason their blood is smaller in quantity and more dry, and the strength of nature more languide.

Wounds received in the Spring, are not altogether so difficult to heale as those taken in Winter or Summer. For all excess of heat and cold is hurtfull to them; it is ill for a convulsion to happen upon a Wound, for it is a signe that some Nervous body is hurt, the braine suffering together therewith, as that which is the original of the Nerves. A Tumor comming upon great Wounds is good, for it shewes the force of nature is able to expell that which is harmefull, and to ease the wounded part. The organicall parts wholly cut off cannot againe be united: because a vital part once severed and plucked from the trunk of the body cannot any more receive influence from the heart as from a roote without which there can bee no life. The loosed continuity of the Nerves, Veines, Arteries, and also the bones, is sometimes restored, not truely, and as they say, according to the first intention, but by the second, that is, by reposisition of the like, but not of the same substance. The first intention takes place in the fleshy parts by converting the Alimentary bloud into the proper substance of the wounded part. But the second, in the spermatique parts in which the lost substance may be repaired by interposition of some heterogeneous body, which nature, diligent for its owne preservation, substitutes in place of that which is lost: for thus the body, which restores and agglutinates, is no bone but a Calce, whose original matter is from an humor somewhat groffer than that, from whence the bones have their original and beginning.

This
This humor, when it shall come to the place of the fracture, agglutinateth the ends of the bones together, which otherwise could never be so knit by reason of their hardness. The bones of children are more easily and speedily united by reason of the plianeness of their soft and tender substance. Lastly we must here admonish the Chirurgeon, that small Wounds and such as no Artifan will judge deadly, doe divers times kill by reason of a certaine occult and ill disposition of the wounded, and incomprising bodies, for which cause we read it observed by Hippocrates, that it is not sufficient for the Physition to performe his duty, but also externall things must be rightly prepared, and fitted.

CHAP. V.

Of the Cure of Wounds in Generall.

The General Indication of Wounds.

He Chirurgeon ought for the right cure of wounds to propone unto himselfe the common and generall indication: that is, the uniting of the divided parts, which indication in such a case is thought upon and knowne even by the vulgar; for that which is dis-joynd desires to bee united, because union is contrary to division. But by what means such union may be procured, is only knowne to the skillfull Artifan. Therefore we attaine unto this chiefe and principal Indication by the benefit of nature as it were the chiefe Agent, and the work of the Chirurgeon as the servant of nature. And unless nature shall be strong the Chirurgeon shall never attaine to his conceived, and wished for end: therefore that he may attaine hereto, he must per form five things: the first is, that if there bee any strange bodies, as pieces of Wood, Iron, Bones, bruited fleeb, congealed blood, or the like, whether they have come from without, or from within the body, and shall be by accident fastened or stucke in the wound, he must take them away; for otherwise there is no union to be expected.

Another is, that he joyne together the lippes of the wound; for they cannot otherwise be agglutinateth and united. The third is, that he keepe close together the joyned lippes. The fourth, that he preserve the temper of the wounded part, for the distemper remaining, it is impossible to restore it to its unity. The fifth is, that he correct the accidents, if any shall happen, because these urging, the Physition is often forced to change the order of the cure.

All strange and externall bodies must bee taken away, as speedily as is possible, because they hinder the action of nature intending unity, especially if they press or prickle any Nervous body, or Tendon, whence paine or an Abcess may breed in any principall part, or other serving the principall.

Yet if by the quick and too hastily taking forth of such like bodies, there bee fear of cruel paine or great effusion of blood, it will bee farre better to commit the whole worke to nature than to exasperate the Wound by too violent hastening.

For nature by little and little will exclude, as contrary to it, or else together with the Phi. what strange body soever shall be contained in the wounded part. But if there shall be danger in delay, it will bee fit the Chirurgeon fall to worke quickly, safely, and as mildly as the thing will suffer; for effusion of blood, swooning, convulsion and other horrid symptomes, follow upon the too rough and boytous handling of Wounds, whereby the patient shall be brought into greater danger than by the wound it selfe.

Therefore he may pull out the strange bodies, either with his fingers, or with instruments, fit for that purpofe: but they are sometimes more easily and sometimes more hardly pulled forth, according as the body infused is either hard or facile to be found or pulled out. Which thing happens according to the variety of the figure of such like bodies; according to the condition of the part it selfe, soft, hard, or deepe, in which these bodies are fastened more straitly or more loosely; and
and then for nature of retiring any worse harme, as the breaking of some Vessel: but how wee may performe this first intention, and also the expression of the instruments necessary for this purpose, shall be shown at the particular treaties of wounds made by Gun-shot, Arrows and the like.

But the Surgeon shall attain to the second and third scope of curing wounds by two and the same meanes, that is, by ligatures and futures: which notwithstanding before hee use, hee must well observe whether there be any great fluxe of blood present, for he shall stoppe it if it be too violent; but provoke it, if too slow, (unless by chance it shall be powerd out into any capacity or belly) that so the part freed from the superfluous quantity of blood may be lesse subjected to inflammation. Therefore the lippes of the wounds shall be put together, and shall be kept so joined by future and ligatures: Not truly of all, but onely of thse which both by their nature, and magnitude, as alfo by the condition of the parts in which they are, are worthy and capa bile of both the remedies. For a simple and small solution of contunity, stands only in neede of the Ligature which we call incarnative, especially, if it be in the Armes or Legges; but that which divides the Muscles transversely, stands in need of both Suture and Ligature: that so the lippes which are somewhat farre distant from each other, and as it were drawne towards their beginnings, and ends, may bee con joyned.

If any portion of a fleshly sub stance by reason of some great cut shall hang downe, it must necesarily be adjoy ned and kept in the place by future. The more notable and large Wounds of all the parts, stand in need of Suture, which doe not easily admit a Ligature, by reason of the figure and shape of the part in which they are, as the Eares, Nose, Hairy-scalpe, Eye-liddes, Lippes, Belly and Throat.

There are three sorts of Ligatures, by the joyn t confent of all the Ancients. They commonly call the first, a Glutinative or Incarnative; the second Expulsive, the third Retentive. The Glutinative or Incarnative is fit for simple, green, and yet bloody wounds. This consists of two ends, and must be drawne, that beginning on the contrary part of the wound, wee may goe upwards, partly crossing it, and going downwards againe, we may closely joyn together the lippes of the Wound, but let the Ligature be neither too strait, lest it may cause inflammation or paine; nor too loose, lest it be of no use, and may not well containe it.

The Expulsive Ligature is fit for fanguineous and putrid ulcers, to preffe out the fith contained in them. This is performed with one Rowler, having one simple head: the beginning of binding must bee taken from the bottome of the Sinus, or some other thereof; and there it must be bound more straitly, and so by little and little going higher, you must remit something of that rigour, even to the mouth of the Vicer. That so (as we have said) the fanguineous matter may bee preffed forth.

The Retentive Ligature is fit for such parts as cannot suffer strait binding, such are the Throat, Belly, as alfo all parts oppressed with paine: For the part vexed with paine, abhorreth binding. Thence thereof, is to hold to local Medicines. It is performed with a Rowler, which consists of one, some whiles of more, some whiles of one head. All these Rowlers ought to bee of linnen, and such as is neither too new, nor too old; neither too coarse, nor too fine. Their breadth must be proportionable to the parts to which they shall bee applied, the indication of their largeness being taken from their magnitude, figure and fire. As wee shall shew more at large in our Tractates of Fractures and Dislocations.

The Chirurgion shall performe the first scope of curing Wounds, which is of preferring the temper of the Wounded part, by appointing a good order of Diet by the Prefcrip of a Physitian, by using universal and local Medicines. A slender, cold, and moist Diet must be observed, untill that time be passed, wherein the patient may bee safe and free from accidents which are usually feared. Therefore let him bee fed sparingly, especi ally if he be plethoric; he shal abstaine from salt and spiced feth, and also from wine. If he shall bee of a Cholerick or Sanguine nature: In need of wine he shall use the decoction of Barly or Liquerice, or Water and Sugar. He shall keepe himselfe quiet; for self is (in Celsia opinion) the very best Medicine. Hee shall avoyde Venery, Contentions, Brawles, Anger, and other perturbations of the mind.
Of Wounds in General.

Lib. 9.

When hee shall feeme to bee past danger, it will bee time to fall by little and little to his accustomed maner of diet and life. Universal remedies are Phlebotomies and purging, which have force to divert and hinder defluxion, whereby the temper of the part might be in danger of change.

For Phlebotomy it is not always necessary, as in small wounds and bodies, which are neither troubled with ill humours, nor plethoricke: But it is enely required in great wounds, where there is feare of defluxion, paine, Delirium, Raving and unquietneffe; and lastly in a body that is Plethoricke, and when the joints, tendons, or nerves are wounded. Gentle purgations must bee appointed, because the humours are moved and imaged by stronger; whence there is danger of defluxion and inflammation: wherefore nothing is to be attempted in this cafe, without the advice of a Phyfition.

The Topick and particular Medicines are Agglutinative, which ought to be induc'd with a drying and attributive quality, whereby they may hold together the lips of the wound, and drive away defluxion, having always regard to the nature of the part and the greatnesse of the diseafe. The Simple Medicines are Olehnum, Alies, Serovoli, Bole-Armeniak, Terra Sigillata, Sangu Dragom, Common and Venice Turpentine, Gumme Elemni, Plantane, Horfe-tayle, the greater Comfrey, Farina Vitalis, and many other things of this kind, which we shall speake of hereafter in our Antidotary.

The fifth scope of healing wounds, is the Correction of those Symptomes or Accidents which are accustomed to follow wounds, which thing verily makes the Chirurgion have much to do; For he is often forced to omit the proper cure of the disease, so to refist the accidents and symptomes, as bleeding, paine, inflammation, a fever, convulsion, palfie, talking idly, or distraction, and the like. Of which we shall treat briefly and particularly, after we have first spoken of Sutures as much as we shall thinke fitting for this place.

CHAP. VI.

Of Sutures.

When Wounds are made alongft the thighes, Legs, and armes, they may easilly want Sutures, because the solution of continutiy is easily restored by Ligatures, but when they are made overthwart, they require a Suture, because the fleith and all such like parts, being cut are drawne towards the found parts; whereby it comes to passe that they part the further each from other, wherefore that they may be joyned and so kept, they must be sewed, and if the wound be deep, you must take up much fleith with your needle; for if you onely take hold of the upper part, the wound is onely superfcially healed: but the matter shut up, and gathered together in the bottome of the wound, will cause absceffes and hollow Hicres: Wherefore now wee must teache of making of Sutures.

The firft, called interparale, leaves the distance of a fingers breadth, and therefore is fit for the greene wounds of the fleshy parts, which cannot be cured with a Ligature, and in which no heterogeneous or strange body remains; It is performed after this manner. You must have a smooth needle with a thread in it, having a three square point, that so it may the better enter the skin, with the head of it some what hollowed, so that the thread may lie therein, for to the needle will the better go through. You must also have little pipe with a hole or window in the end, which you must hold and thrust against the lip of the wound, that it bee not moved to the one side or other, whilst you thrust thorough the needle And that wee may see thorough that window when the needle is thrust thorough, and also draw it together with the thread, and withall hold the lip of the wound in more firmly, that it follow not at the drawing forth of the needle and thread. Having thus pierced the lips of the wound, tie a knot, necre to which cut off the thread; least that if any of it bee left below
Of Wounds in General.

below the knot, it may fo flick to the Emplasters that it cannot be plucked and separated from them without paine, when they are taken off. But you must note, the first stitch must be thrust through the midst of the wound, and then the second must be in that space which is between the midst and one of the ends; but when you have made your stitches, the lips of the wound must not be too closely joyned, but a little space must be left open between them, that the matter may have free passage forth, and the inflammation and pain may be avoided; otherwise if they shall be closely joyned together without any distance between them, a tumor after arising when the matter shall come to suppuration, the lips will be so much distended that they may easily be broken by the thinness of the thread. But you must neither take hold of too much nor too little flesh with your needle, for too little will not hold, and too much causeth paine and inflammation. And besides leaves an ill favoured scarre. Yet in deeper wounds, such as are those which are made in the thicker Muscles, the needle must be thrust home, that so it may comprehend more of the fleshly substance; lest the thread draw away by the weight of the flesh not taken hold of, may be broken. But oftentimes wounds are seen made in such places as it will be needful, the Chirurgion should have a crooked needle and pipe, otherwise the Suture will not succeed according to his desire. Wherefore I have thought good to set forth both their figures, that you may use either as occasion shall serve.

The Figure of Pipes with needles in them, and Needles fit for Sutures.

The second Suture is made just after the same manner as the Skinners sewe their fells or fers. And the guts must be sewed with this kind of Suture, if they shall be at any time wounded.

The third Suture is made by one or more needles having threads in them, thrust through the wound, the threads being wrapped to and against at the head and the point of the needle, as boyes use to tally their needle, for fear of losing it, in their caps, or clothes. This kind of Suture is fit in the curing and healing of Hare-lips, as we shall shew you hereafter expressed by a Figure.

The fourth kind of Suture is termed Gallavraham, invented for the restoring and uniting the great Muscles of the Epigastrium, or lower belly, cut with a great wound together with the Peritoneum lying under them. The manner whereof we will shew in due place.

The fifth kind is called the Dry Suture, which we use only in the wounds of the face, which also we will describe in its proper place.
Of the Flux of blood, which usually happens in wounds.

There are many ways of stopping blood.

The first way is by closing the lips of the wound, and unless it be for a great depth, are contained by medicines which have an attritious, cooling, drying, and glutinous faculty. As terra sanguis, Boli Arminii, San. 3. 6. Thuors, Myrrha, Myrrha, Alces, an. 5. j. Furatione molend. 3. 3. Fiat pulvis qui albumine obtuscit rubec, &c. Or R. Thuors & Alces, un. partes equivalent. Let them be mixed with the white of an egg, and the down of a hare, and let the pledgets be dipped in these medicines, as well those which are put unto the wound as those which are applied about it. Then let the wound be bound up with a double clop and ligature, and the part be seated as may seem the least troublesome and most free from pain.

But if the blood cannot be stayed by this means, when you have taken off all that covereth it, you shall press the wound and the orifice of the vessel with your thumb, so long until the blood shall become concreet about it, into so thick a clot as may stop the passage.

The second way is by cutting the vessel, and if it cannot be thus stayed, then the suture (if any be) must be opened, and the mouth of the vessel towards the original or root, must be taken hold of, and bound with your needle and thread, with as great a portion of the flesh as the condition of the part will permit. For thus I have stayed great bleedings, even in the amputation of members, as I shall shew in its place. To performe this worke, we are often forced to divide the skin which covereth the wounded vessel. For if the jugular vein, or Artery be cut, it will contract and withdraw itself upwards and downwards. Then the skin and flesh must be laid open under which it lies, and thrusting a needle and thread under it, it must be bound as I have often done. But before you lose the knot, it is for the flesh be grown up, that it may stop the mouth of the vessel, lest it should then bleed.

But if the condition of the part shall be such as may forbid this comprehension, and binding of the vessel, we must come to Scharstones, such as are the powder of burnt Virginal, the powder of Mercury, with a small quantity of burnt Allume, and Cowricks which cause an Eschar. The falling away of which must be left to Nature, and not procured by art, lest it should fall away before that the orifice of the vessel shall be stopped with the flesh, or clotted blood.

But some times it happens that the Chirurgion is forced wholly to cut off the vessel itself, that thus the ends of the cut vessel withdrawing themselves, and shrinking upwards and downwards, being hidden by the quantity of the adjacent and adjoining parts, the flux of blood, which was before not to be bleed, may be stopped with ease labour. Yet this is an extreme remedy and not to be used, unless you have in vain attempted the former.
Of Wounds in General.

CHAP. VIII.

Of the Pains which happen upon Wounds.

He pains which follow upon wounds ought to be quickly awaged, be
cause nothing so quickly dejects the powers; and it always causes a de-
fluxion, of how good soever a habit or temper the body be of; for Na-
ture ready to yield assistance to the wounded part, always sends more
humours to it, than are needful for the nourishment thereof, whereby it comes to
pace that the defluxion is easily increased, either by the quantity, or quality, or by
both.

Therefore to take away this paine the author of defluxion, let such Medicines be
applied to the part as have a repelling and mitigating faculty; as R. Ola Myrtini,
& Rosarium, suz, j. Ceratoli, 3. 3. Ferina boric, 3. 6. Boli armeni, & terra fixillat, una, 3,
vj. Melt the Waxe in the Oyles, then incorporate all the rest, and according to
Art, make a Medicine to be applied about the part, or R. Empleaf. Diancathith, 3. iv,
Ole. Rosari, & ascet. una, 3. 6. liqausam simul, and let a Medicine be made for the fore
mentioned use. Irrigations of oyle of Roses and Mirtiles, with the white of an Egge,
or a whole Egge added thereto, may serve for lenitives, if there be no great inflam-
nation; Rowlers and double cloathes moistened in Oxycrate, will be also convenient
for the same purpose. But the force of such Medicines must be often renewed, for
when they are dryed, they augment the paine. But if the paine yield not to these;
we must come to narcotick Medicines, such as are the Oyle of Poppy, of Mandrake, a
Caraplasme of Henbane and Sorrell, adding thereto Mallowes and Marsh-mallows,
of which we spokc formerly in treating of a Phlegmon.

Lastly, we must give heed to the cause of the paine, to the kind and nature of the
humour that flows down, and to the way which Nature affects; for according to
the variety of these things, the Medicines must be varied, as if heat cause paine, it
will be awaged by application of cooling things; and the like reafon observed in the
contrary, if Nature intend suppuration, you must helpe forwards its endeavours with
fuppurating Medicines.

CHAP. IX.

Of Convulsion by reason of a wound.

Convulsion is an unvoluntary contraction of the Muscles (as of parts
movable at our pleasure, towards their original, that is, the Braine and
Spinall Marrow, for by this the Convulsed member or the whole body
(if the Convulsion bee universal) cannot be moved at our pleasure. Yet
motion is not lost in a Convulsion as it is in a Palsie, but it is only depraved; and
because sometimes the Convulsion poiffeth the whole body, otherwhiles some
part thereof, you must note that there are three kinds of Convulsions in Gen-
erall.

The first is called by the Greeks, Tetaues, when as the whole body growes stiffe
like a flake that it cannot be moved any way.

The seconcd is called Opisbostonos, which is when as the whole body is drawn
wards.

The third is termed Empephilotonos, which is when the whole body is bended or
crooked forwards. A particular Convulsion is, when as the Muscle of the Eye, Tongue,
and the like parts which is furnished with a Nerve, is taken with a Convulsion.
Repletion or Inanition, Sympathy or consent of paine cause a Convulsion. Abun-
dance of humours cause Repletion, dulling the body by immoderate eating and
drinking, and omission of exercise, or any accustomed evacuation, as suppresstion of

What a Con-

vulsion is.

Three kinds
of a convulsion
Cause of Re-

pleption.
OF WOUNDS IN GENERAL

The Hemorrhoids and Convolusions: for hence are such like excrementious humours drawn into the Nerves, with which they being replete and filled, are dilated more than is fit, whence necessarily becoming more thick, they suffer Convulsion. Examples whereof appear in Leather and Lute or Viol-ftrings, which fwell with moisture in a wet season are broken by repletion.

Immoderate vomitings, fluxes, bleedings, cause Inanition or Empiromene, wherefore a Convulsion caused by a wound, is deadly as also by burning fevers. For by thefe and the like causes, the inbred and primigenious humidity of the Nerves is wasted, so that they are contracted like leather which is shrunk up, by being held too near the fire, or as idle strings which dried with Summers heat, are broken with violence, such a Convulsion is incurable; for it is better a Fever follow a Convulsion, than a Convulsion a Fever, as we are taught by Hippocrates, so that such a Fever bee proportionall to the strength of the convulsiue cause, and the Convulsion proceed from Repletion; for the abundant and grosse humour causing the Convulsion is digested and wasted by the feverish heat.

The causes of a Convulsion by reason of paine, are either the puncture of a Nerve, whether it be by a thing animal, as by the biting of a venomous beast; or by a thing inanimate, as by the prick of a needle, thorne, or pen-knife or great and piercing cold, which is hurtfull to the wounds, principally of the nervous parts; whereby it comes to paffe, that by causing great and bitter paine in the nerves they are contracted towards their original, that is, the Braine, as if they would crave succour from their parents in their distrest estate. Besides also, an ill vapour carried to the braine from some putrefaction or felicitaceth it, that contracting it selfe, it also contracteth together with it all the Nerves and Muscles, as we see it happeneth in those which have the falling sicknesse. By which it appears not only the Braine it selfe suffereth together with the Nerves, but also the Nerves with the Braine. The signes of a Convulsion are difficult, painefull and depraved motions, either of some part or of the whole body, turning aside of the Eyes and whole Face, a Convulsion of the Lippes, a drawing in of the Cheekes as if one laughed, and an Universal sweat.

The cure of a Convulsion, is to be varied according to the variety of the Convulsive cause, for that which proceeds from Repletion must be otherwise cured, than that which is caused by Inanition, and that which proceeds of paine, otherwise than either of them. For that which is caused by Repletion is cured by dispersing and evacuating Medicines: as by diet conveniently appointed, by purging, bleeding, digestive local Medicines, exercise, frictions, fulphurious Baths and other things appointed by the prescription of some learned Phyfition which shall oversee the cure, which may confume the superfluous and excrementious humours that poffefle the substance of the Nerves, and habit of the body. The local remedies are Oyles, Vnguences and Liniments, with which the Neck, Back-bone and all the contracted parts shall be annointed. The Oyles are, the Oyle of Foxes, Bayes, Camomill, Wormes, Turpentine, of Coflus, of Calomem: The Oyntments are Vnctionum Arreton, Agripes de Althae, Martiatus, This may be the forme of a Liniment, R. Olii Chamaem. & Laurin. am. 11. R. Olii Volap. 3. j. Vnungum de Althae & Martin. an. 5. 6. Cerae quantum sufficit. Make a Liniment for your use, or R. Olii Limbo. de Spica & de Caslor. an. 3. 11. Aquæ vivi. 6. Cerae quantum suflcijt. Make a Liniment, or R. Vnguenti Martiatis & Agris. an. 5. 11. R. Olii de Terebrant. 3. 6. Cerae quanti. 6. Aqua vita. 3. 1. Cera 3. 1. 6. sue linimentum. But this disea is cured by slender diet, and sweating with the Decotions of Guicium, because by these remedies the grosse, tough, and vilecde excr potent, which are in fault, are digested.

A Convulsion proceeding of Inanition is to be cured by the use of those things, which

The cure of a Convulsion,
which doe wholesomely and moderately nourish. And therefore you must prescribe a diet consisting of meats full of good nourishment; as broth and cullices of Capons, Pigeons, Veale, and Mutton, boiling therein Violet and Mallow leaves. Conserver must be ordained, which may strengthen the debilitated powers, and humour the habit of the body, such as are the Conserver of B urglofe, Violets, Borage and water Lilies. The following broth will be profitable, R. Be 1 

the following lewpel will be good. R. 5 v. Aquae viol. No 3 3, a 2 3, viol, v 2 3. If the patient be bound in his body, emollient and humouring Clysters shall be appointed, made of the decoction of sheep's head and feet, Mal- lowes, Marth Mallowes. Pellets of the wall. Violet leaves, and other things of the like faculty; or that the remedy may be more ready and quickly made: let the Cly- sters be of Oyle and Milk. Topick remedies shall be Liniments and Bathers. Let this be the example of a Liniment. R. Olii Viol. & Amygdal. dact. ana. z. j. Olii Linhar. & Lumbic, ana. z. j. Asa 2 3, 2 3, 2 3. Cer 2 3, aqua quantum sufficit, fat Linimentum, with which let the whole spine and part affected be annoyed: This shall be the form of an emollient and humouring Bath. R. Fcl. Malva. Bull Malva. Pariet. ana. M. vj. Seminis Linii & semen. ana. l. 8. Coaguantur in Aqua communis, addendo Olii Linhar. l. viij. Make a Bath: Into which let the patient enter when it is warme. When he shall come forth of the Bath, let him be dried with warme clothes, or reft in his bed avoyding sweat. But if the patient be able to undergoe the charge, it will be good to ordaine a Bath of Milk, or Oyle alone, or of them equally mixt together.

Of the cure of Convulsion, by sympathy and paine.

Convulsion which is caused both by confection of paine and Communication of the affect, is cured by remedies which are contrary to the dolorifque cause. For thus if it proceed from a puncture or venemous bite, the wound must be dilated and enlarged by cutting the skin, so the venemous matter may flow forth more freely, for which purpose, also Medicines which are of a thin and liquid consistence, but of a drying and digestif faculty shall be prescribed, to call forth & dissolve the virulence, as Treacle & Mithridate, dissolved in Aquae voto, with a little of some Mercuriall powder: for this is a no- ble Antidote. Also cupping glasses and scarification will be good. Laffly the condition of all dolorifque causes, shall bee oppugned by the opposition of contrary remedies, as if paine by reason of a pricked Nerve or Tendon, shall cause a Convulsion, it must presently be retfited by proper remedies, as Oyle of Turpentine, of Euphorbium, mixt with Aquae voto, and also with other remedies appropriate to punctures of the Nerves. If the paine proceede from exceede of cold, because cold is hurtful to the Braine, the Spinall marrow, and Nerves the patient shall bee placed in a hot aire, such as that of a Hot-house or Stove, all the Spine of his back and Convulved parts, must be annoyed with the hot Limiments above mentioned: For that is much bet- ter, than suddenly to expose him from the conceaved Convulcifique, cause to a most hot fire or warme Bath. In the meane time the Chirurgion must take diligent heed, that as soon as the figures of the Convulsion come, or already present, or at hand, doe flew themselves, that he put a flicke between the patients teeth, leaft they bee fast locked by the pertinacious contraction of the tawes: for many in such a case have bit off their tongues, for which purpose he shall bee provided of an instrument called Speculum Oris, which may be dilated and contracted according to your mind by the means of a fcrew, as the figures underneath demonstrate, the one presenting it open and somewhat twined up, and the other as it is shut.
The Figure of a Speculum Oris, to open the teeth when they are locked or held fast together.

He Palsie is the resolving or mollification of the Nerves, with privation of sense and motion, not truly of the whole body, but of the one part thereof, as of the right or left side. And such is properly named the Palsie; for otherwise and lastly properly the resolution of one member is also called the Palsie. For when the whole body is resolved, it is an Apoplexy. Therefore the Palsie sometimes takes half the body, other times the upper parts which are between the navel and the head, other times the lower which are from the navel to the feet, sometimes the tongue, gullet, bladder, yard, eyes, and lastly any of the particles of the body.

It differs from a Convulsion in its whole nature. For in a Convulsion, there is a contention and contraction of the part, but in this a resolving and relaxation thereof besides, it commonly happeneth that the sense is either abolished or very dull, which usually remains perfect in a Convulsion. There are some which have a prickling, and as it were great pain in the part.

The causes are internal or external, the internal are humors obstructing one of the ventricles of the brain, or one side of the spinal marrow, so that the Animal faculty, the worker of sense and motion, cannot by the Nerves come to the part to perform its action. The external causes are a fall, blow, and the like injuries, by which oftentimes the joints are dislocated, the spinal marrow wrested aside, and constrictions and compressions of the Vertebra arise, which are causes that the Animal spirit cannot come to the Organes in its whole substance. But it is easy by skill in Anatomy perfectly to understand by the resolved part the seat of the morbific cause, for when there is a Palsie properly so called, that is when the right, or left side is wholly seized upon, then you may know that the obstruction is in the brain, or spinal marrow; but if the parts of the head being untouched, either of the sides being wholly resolved, the fault remains in the Original of the spinal marrow, if the arms be taken with this disease, we may certainly think that the matter of the disease lies hid in the 5, 6, and 7 Vertebra of the neck. But if the lower members languish, we must judge the Paralytic cause to be contained in the Vertebra of the loynes and holy bone, which thing the Chirurgeon must diligently observe that he may always have recourse to the original of the disease. The Palsie which proceeds from a Nerve cur,
Of Wounds in General.

or exceedingly bruised, is incurable, because the way to the part by that means is shut against the Animal spirit. Old men fear or never recover of the palsy, because their native heat is languid, and they are oppressed with abundance of excrementitious humors, neither doth an invereter palsy which hath long posseted the part, nor that which succeeds an Apoplexy, yeeldus any better hope of cure. It is good for a feaver to come upon a Palsey, for it drives the disputation of the relouving and relaxing humor, to be hoped for. When the member affected with the palsy, is much wasted, and the opposite on the contrary, much creased in quantity, heat and colour, it is ill: For this is a signe of the extreme weakness of the afflicted part, which suffers it selfe to be defrauded of its nourishment, all the provision flowing to the sound and opposite side.

**Chap. XIII.**

Of the cure of the Palsey.

The cure of the Palsey we must not attempt any thing, unleefe we have first used general remedies, diet and purging; all which care lyth upon the learned and prudent Phyficion. The Decoction of *Guaiacum* is very fit for this purpose, for it procures sweat and attenuates, digests and drieth up all the humidity which relaxeth the nerves: but when sweat doth not flow, it shall not be unprofitable to put about the resolved members, bricks heated red hot in the fire and quenched in a decoction of Wine, Vineger, and resolving herbs, or also stone bottles, or Oak and Swines bladders, half filled with the same decoction; for such heat which is actual, refustituteth and strengtheneth the heat of the part, which in this distise is commonly very languid. Then the Patient shall go into a Bathing-tub, which is vailed or covered over with as we have described in our Treatise of Batches, that so he may receive the vapour of the following Decoction: *R. Fol. Salvia, Lavend. Laur. major. Absinth. Thym. Angelica, Fusta, a. M. S. Florum Chamom, Melli. Anethi, Anthoni &c.*

Let them be all put in the Veoffel mentioned in the Treatise lately described for use. The patient shall keep him selfe in that Bathing-tub, as long as his strength will give him leisure, then let him be put into his bed well covered, where he shall sweat againe, be dried and refrefhed. Then let him be presently anointed with the following ointment, which *Lantillus Pomosanii* much commendes, *R. Oli Laurini & de Terebinth. an. jij. Olii balsami gratiferet et aqua vit*.

Make an ointment in forme of a liquimine, adding a little wax if need shall require. Or you shall use the following remedy approved by many Phyfitions, *R. Myrrha & aloes, Spicemarii, Sanguis dracmaris, thuris, opponmaci, Bdlleri, Carpopalami, amomi, sarcoceole,Planta mai, gumi arabics, Myrc. liquidea, Latani, essoore, an. jij. Meafhi, 3. j. aqua vit*.

And let them all be put in fit veffels, that they may be diffilled in *Balneo Mariae*, and let the spine of the back, and paralytic limbes be moistened with the diffilled liquor, of which also you may give the patient a spoon full to drink in the morning with some Sugar. For thus the stomach will be heated, and much phlegm contained therein as the fuel of this distise, will be confumed.
Of Wounds in General.

You must also appoint exercises of the affected parts and frequent and hard friction, with hot linen clothes, that the native heat may be recalled and the excrements contained in the parts digested. You may also use the Chymicall oyles of Rosemary, Tyme, Lavender, Cloves, Nutmegs, and lastly of all spices, the manner of extrading, whereof we shall hereafter declare in a peculiar Treatise.

Of Sowning.

Sowning is a sudden and pertinacious defect of all the powers, but especially the Vital; in this the Patients lie without motion and sense, so that the Ancients thought that it differed from death only in continuance of time. The cause of sowning, which happens to those that are wounded, is bleeding, which causes a diffipation of the spirits; or fear which causes a sudden and joint retirement of the spirits to the heart. Whence follows an intermission of the proper duty as also of the rest of the faculties, whilst they being thus troubled, are at a stand. Also Sowning happens by a putrid and venenate vapour, carried to the heart by the Arteries, and to the Brain by the Nerves, by which you may gather that all sowning happens by three causes. The first is, by diffipation of the spirits and native heat, as in great bleeding. And then by the oppression of these spirits by obstructions, or compreッション as in a fear, or tumult; for thus the spirits fly back hastily from the surface and habit of the body, unto the heart and center. Lastly, by corruption, as in bodies filled with ill humors, and in poisonous wounds. The signs of Sowning are Paleness, a dewy and sudden sweat arising, the failing of the pulse, a sudden falling of the body upon the ground without sense or motion, a coldness possessing the whole body, so that the Patient may seem rather dead, than alive. For many of these who fall into a sowne dyevanish they have present help. Therefore you shall help them, if, when they are ready to fall, you sprinkle much of water in their face, if the sowing happen by dispersion of the spirits, or if they shall be fet with their faces upwards, upon a bed or on the ground, as gently as may be, and if you give them bread and wine to hold and chew in their mouths. But if it be caused by a putrid vapour and poiyous air, you shall give them a little Mithridat or Treacle in Aquavitae with a lipoone, as I usually do to those which have the plague, or any part affected with a Gangrene, or phiallice. But if the patients cannot be raised out of their sownes, by reason of the pertinacious oppression and compression of the spirits about the heart, you must give them all such things as have power to diffuse, call forth and refuscite the spirits, such as are, strong wines to drink, sweet perfumes to smell. You must call them by their owne name, loud in their ears, and you must pluck them somewhat hard by the hairs of the temples and neck. Also rub the temples, nostrils, wrists and palms of the Hands with Aquavitæ, wherein Cloves, Nutmegs, and Ginger have been steeped.

Of Delirium (i.) Raving, Talking idly or Doting.

Delirium is, thecause thereof.

Where the brain suffers with the middriff,

What a Symptom is, in feavers caused by a wound, and inflammation; and it is a perturbation of the phantaisie, and function of the mind, not long enduring. Wherefore such a doting happens upon wounds, by reason of vehement paine, and a feaver, when as the nervous parts as the jointes, stomach, and middriff shall be violated.

For the Ancients did therefore call the Middriff Pherone, because when this is hurt, as if the mind itselfe were hurt, a certaine phrenetic euntes, that is, a perturbation of the Animal faculty, which is employed in rationation, by reason of the community which the Diaphragma hath with the Braine, by the nerves, sent from the fifth Chyga.
Conjugation, which are carried to the stomach. Therefore doting happens by too much bleeding, which causeth a diffipation of the spirits, whereby it happens that the motions and thoughts of the mind are, as we see it happens to those who have bled much in the Amputation of a member. And it happens by the puncture of a venemous beast, or from seed retained or corrupted in the womb, or from a Gangreen or Sphacel, from a venenate and putrid air carried up to the brain, or from a sudden tumult and fear. Lastly, what things soever with any diltemper especially hot, do hurt and debilitate the mind. These may cause doting by the influx of humors, specially cholerick, by diffipation, oppression or corruption of the spirits. Therefore if it shall proceed from the inflammation of the brain, and Membranes or Membranes thereof, after purging and blood letting by the prescription of a Phisition, the hair being shaven or cut off, the head shall be fomented with rose vineger, and then an Emplaster of Dicasilethae dissolved in oyle and vineger of Roses, shall be laid thereupon. Sleep shall be procured with Barley creames, wherein the seeds of white Poppy have been boil'd, with broths made of the Decotion of the cold seeds of Lettuce, Pursline, Sorrell and such like. Cold things shall be applied to his nostrils, as the seeds of Poppy gently beaten with Rose-water and a little vineger. Let him have merry and pleasant Companions that may divert his mind from all cogitation of sorrowfull things, and may ease and free him of cares, and with their sweet intreaties may bring him to himself again. But if it happen by default of the spirits, you must seek remedy from these things which have been set downe in the Chapter of Sweating.
OF THE GREENE
AND BLOODY WOUNDS
OF EACH PART.

THE TENTH BOOKE.

CHAP. I.

OF THE KINDS OR DIFFERENCES OF A BROKEN SCULL.

Now that we have briefly treated of wounds in general, that is, of their differences, signs, causes, prognosticks and cure, and also chewed the reason of the accidents and symptoms which usually follow and accompany them; it remains that we treat of them as they are incident to each part, because the cure of wounds must be diversly performed according to the diversity of the parts. Now we will begin with the wounds of the head. Therefore the head hath the hairy scalp lightly bruised without any wound, whereas it is wounded without a contusion, and sometimes it is both contused and wounded: but a fracture made in the skull, is sometimes superficial, sometimes it descends even to the Diploe, sometimes it penetrates through the 2. Tables, and the Meninges into the very substance of the Brain; besides, the brain is oftentimes moved and shaken with breaking of the internal veins, and diverse symptoms happen when there appears no wound at all in the head of all, and every of which will speak in order, and add their cure, especially according to the opinion of the divine Hippocrates. He in his Book 4 of the wounds of the head, seems to have made 4, or 5, kinds of fractures of the skull. The first is called a fissure or fracture, the 2. a contusion or collision, the 3. is termed Effrutura, the 4. is named Septum, or a seat, the 5. (if you please to add it) you may call a Counterfracture, or as the interpreter of Paulus calls it, a Rejionism. As when the bone is cleft on the contrary side, to that which received the stroke. There are many differences of these 5 kinds of a broken skull. For some fractures are great, some small, and others indifferent; some run out to a greater length or breadth; others are more contracted, some refuse only in the superflities; others descend to the Diploe, or else pierce thorough both the Tables of the Scull; some run in a right line, others in an oblique and circular, some are complicated amongst themselves, as a fissure is necessarily always accompanied with a Collision or Contusion, and others are associated with diverse accidents, as pain, heat, swelling, bleeding and the like. Sometimes the Scull is so broken, that the membrane lying under it, is pressed with divers of the bone, as with pricking needles. Somewhiles none of the bones falls off. All which differences are diligently to be observed, because they force us to vary the cure, and therefore for the help of memory, I have thought good to describe them in the following Table.
### Table of the Fractures of the Scull.

<table>
<thead>
<tr>
<th>Contusion, or Solution of Continuity in the Scull injured either, by</th>
<th>A fracture, or Solution of Continuity in the Scull, caused either, by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Either mannerwise, to your sight, to your feeling, or instrument.</td>
<td>On the side, as for example, when the right side of the bone of the forehead is broken, the left is cleft.</td>
</tr>
<tr>
<td>Or obscure and manifest, when as not the part which received the blow is wounded, but the contrary thereto, and that happens either.</td>
<td>Or from above to below, as when not the first Table which received the blow is cleft, but that which is under it.</td>
</tr>
<tr>
<td>In divers bones to vitreous matter, as want futures, or have them very close, or disjunct otherwise, then is fit, and this opposition is, either.</td>
<td>From the right side to the left, and so on the contrary, as when the right Bregma is struck, a gunshot clefts.</td>
</tr>
<tr>
<td>Whether that is, the obscure &amp; manifest, as that which is termed a Capillary frature, and is manifested by smearing it over with oyle, and writing ink.</td>
<td>Or et cetera both, that is, the obscure &amp; manifest, as that which is termed a Capillary fracture, and is manifested by smearing it over with oyle, and writing ink.</td>
</tr>
<tr>
<td>Or loose that fit, and that either.</td>
<td>Wholly so that the particles of the broken bone removed from their seat, amputating down, press the membrane, whence proceeds that kind of effulgence which retains a kind of attraction, where the bone struck upon is broken as it were into many fragments, flowers and scales, either apparent, or hid in the sound bone, so that it is pressed down.</td>
</tr>
<tr>
<td>Or by incision of a sharp, or cutting thing, but that incision is made, either by</td>
<td>Or in some sort, as when the broken bone is in some parts separated, but on others adheres to the whole bone, whence another kind of effulgence arises, you may call it Arched, when as the bone so swells up, that it leaves an empty space below.</td>
</tr>
<tr>
<td>Succission, when the bone is so cut, that in some part it yet adheres to the sound bone.</td>
<td>Or incision, when the fragment falls down wholly broken off.</td>
</tr>
<tr>
<td>Recission, when the fragment falls down wholly broken off.</td>
<td>Or Sciss, when the mark of the weapon remains imprinted in the wound that the wound is of no more length, nor breadth than the weapon fell upon.</td>
</tr>
<tr>
<td>Or by Sciss, when the mark of the weapon remains imprinted in the wound that the wound is of no more length, nor breadth than the weapon fell upon.</td>
<td>Another</td>
</tr>
</tbody>
</table>
Wounds of each Part.

Another Table of the differences of a fractured Scull.

Simple, as when they are found solitary and by themselves.

Mutually with themselves, as a contumia, or colisian with incision, a fissure with an effracture.

Compound and that either

Their nature, according to which fractures are said.

Their Quantity, whence they are called, great, indifferent and small, according to the triple dimension of length, breadth and profundity.

The differences of fractures common to those of all other parts are drawn, either from

Right, Oblique, Transverse, Round, Triangular.

Their figure, from whence they are called.

Their site, whence they are termed on the fore or back, or the right or left, or the upper or lower part, or superficial and profound.

The part, whence it is called a Fracture of the Forehead, Nowle, Bregma, and Stony bones; and hence it is judged what may be deadly, or hopeful of recovery, easy or difficult to cure.

Of the causes and signs of a broken Scull.

The causes of a broken Scull are external, as a fall, a blow or stroke with any kind of weapon, sharp, obtuse, heavy, hard, the bitings of Beasts, and many other things of the like kind. But the signs by which we come to know that the Scull is broken, are of two kinds; for some of them are found out by the reasoning and discourse of the mind, or by the sense of those which lay open the wound to the eye and hand.

The Rational signs shew by these things which have happened upon the thing itself, whether it be, and of what sort it is. For you may know the Scull is broken, if the patient shall fall down with the stroke, or if he shall fall headlong from a high place upon some hard thing. If for some time after the stroke, he shall lie without speaking, sight, and hearing, if he shall have felt and feel much pain, so that he is often forced to put his hand to the wound. But also the weapon is to be considered, that is, whether it be heavy, obtuse, pricking or sharp. Also we must consider with what and how great strength the stroke was given, and with how great anger and from what distance the weapon fell. Also he must consider whether the patient receaved the blow with his head unarmed and naked, whether he fell into a fowne presently after the blow, whether when he came to himself, he was in his right senses; whether his eyes were blinded, whether he was troubled with a giddiness or dizziness, and whether he bled at the nose, mouth, ears, or eyes, and lastly whether he vomited. For Hippocrates writes, that those who have their brain cut, must necessarily have a feaver and vomiting of choler to ensue thereupon, which Galen confirming in his Commentary faith, that the same happens also when the wound comes to the Membranes of the braines.
Also a dull sound as from a broken vessel coming from the skull, (the hairy scalp and Peristrium being taken off) and it being lightly smitten upon with an iron probe, is said to be a sign of a fracture thereof, as it is recorded by Paulus Agineta. Truly all these signs make a great conjecture or rather assured sense that the skull is wounded, and the brain hurt, as which cannot happen unless the bone be broken, as Cellus hath written. Yet many have had their feules broken, who had no such sign immediately after the blow, but this is very seldom. But I do not think it amongst so many signs, here to omit that which is yet downe by Guido. If any (faith he) will know in what place the skull is broke, let the patient hold fast between his fore teeth, one end of a lute firing or thread, and the Chirurgeon hold the other in his hand; then let him lightly touch or play upon the firing with his fingers; for in the very instant of the sound or stroke, the patient will be certainly assured, or perfectly perceive the part of the skull that is broken, and as overcome and forced by this sense of paine, will by lifting up his hand make demonstration thereof. As yet I have not beene able to finde the truth hereof by experience, although I have made trial of it in many. Wherefore I cannot say any thing certainly of this sign, as neither of that which is mentioned by Hippocrates in Cosm. Prag. In such as you doubt, whether the bones of the skull be broken, or no, you must judge by giving them the flake of Aphodrell, to chew on both sides of their jaws, but so that you bid them withall observe, whether they perceive any bone to crackle, or make a noyse in their heads, for these which are broken seeme to make a noyse.

But passing over these things, now let us come to these signs, which may be obvious to our sense.

CHAP. III.

Of the signs of a broken skull, which are manifest to our sense.

These signs are here said to be manifest to sense, which when the bone is bared, manifest the wound to our eyes, fingers and probe. But if the hairs stand upon one end in the wound, you may know the bone is broke, because the hair which yields to the violence of the blow, cannot be so cut, the bone which resists the stroke being not violated, as it is observed by Hippocrates, wherefore we may by the sight of this one thing, before any inspection of the wound itselfe, suspect by a probable conjecture, that the skull is broken, and persuade the beholders or standers by so much. Moreover we may, before we have cut the skinne across, or laid bare the bone, given a guess by our feeling, whether the skull be broken, or no, if wee by pressing downe our fingers near the wound shall perceive the bone either to stand up, or be pressed downe otherwise than it should naturally be.

The skinne being cut crosswise and the bone laid bare, if the fracture be not obvious to the eye, you must trye with your probe, which must neither be too thyme nor to sharpe, lest by falling into some naturall cranyes, it may cause us to suspect without any cause that the bone is broken, neither let it be too thick, lest the little clefs may deceive you. If when your probe comes to the bone, it meetes with nothing but that which is smooth and slippery, it is a signe that it is whole.

But on the contrary, if you finde it any thing rough, specially where there is no fracture, it thows the bone is broken. But let the Chirurgeon consider, that the fractures are not seldom seene upon the futures, and that the futures have not alwayes one and their naturall site, as also it often comes to passe that the broken cleftes, or cut bones can neither be perceived by your sight, nor instruments, wherefore if you think there is any such thing, by the rational signs above mentioned, annointe the place with writing locke, and oyle, and so you shall finde the cracke or clefs, by the means we shall shew you hereafter.

When you are certaine of the fracture, then you must diligently consider the great-ne
neife of the disease, and apply medicines speedily. Verily when a fracture chances to light upon any future, the disease is hard to be knowne, unless the fracture be very great, because the futures by their clifts and roughneffe resemble fractures, wherefore Hippocrates faith that he was deceived by them. Now having briefly delivered the differences and signs of a broken scull, it is time to come to the severall kindes thereof, with a Fracture.

CHAP. III.

Of a Fracture, being the first kind of a broken scull.

If the Chirurgion by the formentioned signes shall know that the scull is broken, or crackt, and if the Wound made in the musculous skin shall not be thought sufficient for ordering the fracture, then must he have off the hair, and cut with a razour, or incision knife, the musculous skinne with the Pericranium lying under it, in a triangular or quadrangular figure to a proportionable bignesse, always shuffling, as much as in him lies, the futures and temples; neither must he feare any harme to enuie herof, for it is fafe better to bare the bone by cutting the skinne, then to fuffer the kindes and nature of the fracture to remaine unknowne, by a reftless religious preservation of the skinne; for the skinne is cured without any great adoe, though pluckt off to no purpofe.

For it is much more expedient (in Hippocrates opinion) to cure diseases safely and securely though not speedily, than to doe it in a shorter time with feare of relapse and greater inconveniences. Let this dissection bee made with a razour, or sharpe knife; and if there be any Wound made in the skinne by the weapon, let one of your incisions be made agreeable thereto.

A Razour, or Incifion knife.

Now therefore the Musculous skinne together with the Pericranium must be divided and cut with a sharpe razour pressed and guided with a strong and fteddy hand; then must it be fo pluckt from the bone, or fculf lying under it, that none thereof remaine upon the bone; for if it should be rent or torne with the Trepane, it would cause vehement feavers with inflammation. You must beginne to pull it backe at the corners of the lines croffing each other with right angles, with this Chiffell whose figure you fee here exprefsed.

A Chiffell or Instrument to pull backe or separate the Pericranium from the Scull.

Then you must fill all the wound with boulters of fine soft linte, that so the lippes may be kept further a funder. But you shall apply upon it medicines fit to hauish blood. But if it come fo to paife that the blood flowes forth fo violently, that it can be stayed by no meannes, the vessell it selfe must be bound, after this manner

First thrust thorough the musculous skinne on the outside with a needle and thred, then thrust the needle backe againe, then tye the thred on a knot on the outside, but first put some lint rolled up to the bignesse of a Goose quill betweene the thred and the hairy fasple on both fides thereof, leaft the ftraight twitching of the thred
I have lately tried, and performed this upon a certaine Coach-man, who throwne from the Coach upon his head on a pavement of freestone, exceedingly bruised the hind part of the Browes, for which cause it was fit to open the Muckle-bones skinned, with a croise incision, both that the congealed blood might bee presse out, as also that the fracture (if there were any) might be observed. But an Artery being cut in performance hereof, when as the Chirurgeon who was there present could not stay the blood leaking out with violence, and the Coachman already had lost so great a quantity thereof, that his strength was so much decayed, that hee could not firr himselfe in his bed, or scarce speake: I being called, showed them by experience, that whereas astringent medicines were used before to no purpoce, it was better to stay the bleeding by binding the veselle, than to let the patient die for a childish feare of prickinge him.

But that we may returne to our former matter, the Chirurgeon shall the next day consider with what kinde of fracture the bone is hurt, and if no signes of hurt appeare to the eyes, nor be perceived with your fingers and probe, yet some of the rational signes may cause one to have a congeature that there is a fracture: Then you must annoint as we told you before, the bared bone with writting Inke, and a little oyle of Roset, that the leff or cracke may be dyed or coloured therewith, if that there be any there. Then the next dressing you must driue the bone with a linnen cloth, and scrape off the Inke and oyle, with scraping Instruments made for the purpos: if any part thereof, shall be funkce into the bone, for if there be any cracke, it will bee black: Wherefore you must continue scraping untill no signe of the fissure remaine, or else untill you come even to the Dura Mater. But that he may be more certaine whether the fissure pierce thorough both the Tables of the skull, he must bid the Patient, that stopping his nose & mouth, he strive to breake with a great endeavours. For then bloody matter or saires will sweate throught the fissure: For the breath driven forthe of the cheef, and prohibited passage forth, swells and lifts up the substance of the braine, and the Meninges, whereupon that frothy humidity and Saines sweats forth. Therefore then the bone must be cut even to the Dura Mater, with Radula and other scraping Instruments, for that purpos, yet so as you hurt not the membrane, but if the fissure shall be somewhat long, it will not bee convenient to follow it all the extent thereof: for nature will repair and restore the remaint of the fissure by generating a Cover, besides also the Chirurgeon according to cellus opinion must take away as little of the bone as he can, because there is nothing so fit to cover the braine, as the skull. Therefore it shall suffice to make a passaque, whereby the blood and Saines may passe and be drawne forth, leaff that matter being suppressed may corrupt the bone, and causse an inflammation in the braine. But the broken bone must bee taken forth within three dayes ift be pooble, especially in Sommer for feare of inflammation. Yet I have oftentimes taken forth with a Trepans and with Scrapers the bones of the skull, after the seventeenth day, both in Winter & Sommer, and that with happy success. Which I have the rather noted, leaff any should, at any time, suffer the wounded to be left defitute of remedies for it is better to trie a doubleft remedic than none: Yet the By-standers shalbe admonished and told of the danger, for many more die who have not the broken bones of the skull taken out, than those that have.

But the Instruments, with which the wounded or cleft bones may be cut out are called Scapror Radulae, of which I have caused diverse forts to be here deciphered, that every one might take his choice, according to his minde, and as shall bee best for his purpos. But all of them may be srecued into one handle, the figure whereof I have here exhibited.
To conclude, when the skull shall be wounded or broken with a simple fissure, the Chirurgeon must think he hath done sufficient to the patient; and in his Art, if he shall divide the bone and dilate the fissure or cleft with the described Instruments, though he have used no Trepan, although the fissure pierce thorough both the Tables. But if it doth not exceed the first Table, you must lay your scrapers as soon as you come to the second, according to the opinion of Paulus: but if the bone shall be broken, and shivered into many pieces, they shall be taken forthwith with fit Instruments, using also a Trepan if neede shall require, after the same manner as we shal the you hereafter.

Chap. V.

Of a Contusion, which is the second sort of fracture.

N.Ecchymosis, that is, an effusion of blood, presently concreting under the mucous skinne, without any wound, is oft caufed by a violent Contusion. This Contusion if it shall be great, so that the skinne be deviend from the skull, it is expedient, that you make an incifion, whereby the blood may bee eva-cuated and emptied. For in this case you must wholly desist from suppurative medicines, (which otherwise would be of good use in a fleshy part) by reason that all movit things are hurtfull to the bones, as shall be showne hereafter.

Such like Contusions more frequently happen in children, being easly perceived by the softnefe, and inundation of the contused part: forth of which oft times when I have opened them with my incifion knife, ferous, clotted and blackish blood hath issued.
Different cases of a depressed skull.

... and drying medicines. Moreover the fall of a child, may be pressed downe, by a great contusion, even as wee see it happens in thin vessels of brasse, lead, or pewter, for oft times by the pressure of your finger, they are so dented in, that the print thereof remains; yet sometimes they fly backe of themselves, and againe acquire their former plainesse and equabilitie, which also happens, in the bones of children, women, and such as are soft, humidde and phlegmaticke. But if the bones do not spring backe of themselves, you must apply a cupping glasse with a great flame, with all command the patient, to force his breath up as powerfully as he can, keeping his mouth and nose close shut; for thus there will be hope, to restore the depressed bone to its place, by the spirits forstupwards to the braine and fall, by the powerfull attraction of the cupping glasse. But if so bee that the bone cannot by this means be restored, then you must make an incision in the skinne, and fasten such a Trepan, as you see here delineated, into the depressed, or settled part of the bone, and so pull it directly upwards, just as wee see Coopers raise the staves of their cask, when they are sunke too much in.

But if the bone shall be too strong, thicke, and dense, so that this Instrument will not serve to plucke it forth, then you must perforate the fall, in the very center of the depression, and with this threefold Instrument, or Levator put into the hole, lift up and restore the bone to its natural site; for this same Instrument is of strength sufficient for that purpose. It is made with three feet, that so it may be applied to any part of the head which is round, but divers heads may be fitted to the end thereof according as the business shall require, as the figure here placed doth shew.
A. Shews the point or tongue of the Levatory, which must be somewhat dull, so as it may be the more gently and easily put between the Dura Mater and the skull, and this part thereof may be lifted up so much by the head or handle taken in your hand, as the necessity of the present operation shall require.

B. Intimates the body of the Levatory, which must be square, that the point or tongue put thereon should not stand fast, but the end of this body must rest upon the sound bone, as on a sure foundation.

The use thereof is, thus put the point or tongue under the broken or depressed bone, then lift the handle up with your hand, that so the depressed bone may be elevated.

C. Shews the first Arm of the other Levatory, whose crooked end must be gently put under the depressed bone.

D. Shews the other Arm, which must rest on the sound bone, that by the firm standing thereof, it may lift up the depressed bone.

But if at any time it comes to pass, that the bone is not totally broken or depressed, but only on one side, it will be fit to lift it up, as also to make a vent for the issuing out of the flux, to divide the skull with little saws like these, which ye see here expressed, for thus so much of the bone, as shall be thought needful, may be cut off without compression, neither will there be any danger of hurting the brain or membrane with the broken bone.

The Figures of Saws fit to divide the skull.
Of the Greene and Bloody

Of an Effraiture, depression of the bone, being the third kind of Fracture.

Before I come to speake of an Effraiture, I thinke it not amisse to crave pardon of the courteous and understanding Reader, for this reason especially, that as in the former Chapter, when I had determined and appointed to speake of a Contusion, I inferred many things of a Depression; so also in this chapter of an Effraiture, I intend to intermix something of a Contusion; wee doe not this through any ignorance of the thing it selfe, for wee know that it is called a Contusion, when the bone is depreft and crush't, but fall'd not downe. But an Effraiture is when the bone falls downe and is broken by a moit violent blow. But it can scarce come so to passe, but that the things them selves must be confounded and mix't, both as they are done, and alfo when they are spoken of: so that you shall scarce fee a Contusion without an Effraiture, or this without that. Therefore the bones are often broken off and driven downe with great and forcible blows, with clubbes whether round or square, or by falling from a high place directly downe, more or lesse according to the force of the blow, kind of weapon, and condition of the part receiving the same: Wherefore you must bee provided with diversity of remedies and Instruments to encounter therewith. Wherefore adroit the bone is press'd downe, and verier'd into many pieces, now for that these splinters neede not be taken out with a Trepan; you may doe the business with Levatories made and nearly fashioned for that purpose; such as these, which are here express.

But we must have especiall care, lest that in pulling and taking out of these scales and splinters, we hurt the membranes. These scales are somtimes very rough & prickly, so that they cannot touch the Membranes without offence; but somtimes the bufferife is too intricate, that they cannot be taken out unleffe by enlarging the fracture. Wherefore in this case, if there be a space so large, as that the ends of these mullers may enter, you may easilly sheare off so much of the bone, as shall be necessary and requisite for the taking away of these scales, without any assistance of the Trepan, which I have done very often and with good success, for the operation performed by these mullers is far more speedy and safe, than that with the Trepan: and in the performance of every operation, the chiefe commendation is given to safeness and certitude.
Moreover I have thought good here to give you the figures of chisels, scrapers, and pincers, together with a leaden mallet, because such instruments are not only very necessary to take forth the scales of bones which are broken, but also to plain, and smooth those which remain whole.

The Figures of Scrapers, Pincers, a Lead Mallet, &c.

But here you must note, that a trepan nor lever-toe must never be applied to a bone quite broken, lest the membranes lying under it be hurt by the compression thereof. Therefore you must apply them to a found bone, but as near as you can to the fracture, so that you take away as little of the skull as is possible, lest the brains depoised of its bony cover, take some harm thereby. Neither effuatures, nor yet infurces if they bee of some length, must be followed to their ends, but think your felf well, if you have made a passage for the issuing forth of the sanies or fist, and have drawnne forth that bone, which prick'd the membranes. For nature is accustomed by generating a callos to fouder, or unite the bones of the skull, as it also doth thefe of the other parts, as wee have read it written by Hippocrates and Galen, for which purpose it hath by singular providence replenished both the Tables of the skull, with a certaine alimentarie and bloody mater, that with this, as with marrow it might repaire the losse and defect of the bone.

The truth hereof was lately manifested in the servant of Master Grose, who had an effuature on the coronal bone, by a greevous blow, given him with the foot of a mole, which when I understood, I devised the musculous skirme with a three cornered fection in that place, with an intent to apply a trepan thereunto, wherefoe the day following, the bone being bored, and when I thought to draw it forth, yet verily endeavoured to plucke it forth, being already divided with the trepan, I perceived a fearefull production of an effuature, by the moveableness of the bone shaking under my hands for it reached from the midit of the forehead to the lesser corner of the eye.
eye. Wherefore omitting both my determination and endeavour to pull it forth, I thought I should doe sufficiently for the patient; if I should only raise up the bone which was depressed so far, it did not trouble the crane, nor the matter, and flux, were let forth by a passage made with a saw. So that in conclusion, he recovered perfectly, but that he lost one of his eyes which was adjoyning to the fracture.

CHAP. VII.

Of a State, being the fourth kind of a broken skull.

Hippocrates calls a state that kind of fracture of the skull, when the weapon falls upon the skull, that the fracture retaining the print thereof, is neither stretched forth any further, nor contracted to any lesser space.

And seeing there be many forms hereof, they all whether they shall bee superficial, or shall pierce even to the Diploe, or else passe through both the Tables, whether it be with any loffe of the bony substance, whether it runne long wayes, or else be but short, or otherwise are dilate to some breake, or else bee but narrow, whether they shall be done with a cut, or with a pricker with a dagger, fleetas, lance, or other kind of weapon, whether they shall have this or that accident joyned with them, I say all of them, how many and various fower they be, ought and must be cured by some of the formerly described Instruments and means. Yet this must be noted, which as yet we have not remembered, that if it happen by a violent stroke and great wound, that a portion of the bone is wholly to cut off, that it is cleanse sever from the rest of the skull, and hang only by the Pericranium and mufcularous skimney, you must not plucke it from the Pericranium, and caft it away as unprofitable, but restore it to its proper place and place, so by the force of nature, to be stowed by a Callus, as Celsus hath observed.

I have tried the truth of this experiment, in captain Hylas not very long agoe.

He had the middle part of the Os Coronale of the breadth, and length of three fingers, so cut with a sharpe sword, that it stuck not to the rest of the bone, but scarce adhering to the Pericranium and mufcularous skinne, but lay turned downe over his face, so that the Dura Mater was plainly seen; wherefore I prepared to plucke it from the skinne, and caft it away, but that I remembered Hippocrates precept, where bee bids, that the Brake shoulde not be robbd of its cover and left bare. Wherefore first of all I wiped away the blood which was fallen upon the Dura Mater, whose motion you might plainly see, then I restored the portion of the bone, to its place, and fastned it on the upper side with a future consisting of three stitches; and that the residue of the matter might have passage forth, I filled the places between each stitch with lime; by this means, he by the mercy of God, recovered, though at the same time he received many other large wounds in his body; which is a certaine experiment, that we must cast away no part of the skull, nor of the Pericranium, so nor of the mufcularous skinne, unless necessity urge, therefore much less to leave the brake naked and despoiled of its coverings.

CHAP. VIII.

Of a Reflexus, or Counter-fracture, being the fifth kind of fracture.

Oftentimes the fracture is made in the part opposite to that which received the blow, as if the right side be strucke, the left is cloven; this kind of fracture is very dangerous, because wee cannot finde it out by any certaine signe, as it is written by Hippocrates, Lib.de ulna. Capitis. Wherefore at any time, the patient dye of such a fracture, the Chirurgeon must be pardoned.
And although Paulus Argynas laugh at this kind of fracture and thinks that it cannot happen to a man's head, as that which is hard and full, as it happens in empty glass bottles, yet I have sometimes seen and observed it.

Neither is their reason of any validity, who think nature therefore to have framed the head of many bones knit together by futures, left the fracture of the one side, should be stretched to the other. For peradventure this may take place, in such as have express futures, seated and framed according to nature. But it takes place in such as either want them, or have them not seated according to nature, or have them very close and so defaced that it may seem one bone grown together of many; this shall be made manifest by recital of the following History.

A servant of Massin the Poitier-master had a greevous blow with a stone, upon the right Bregma, which made but a small wound, yet a great contusion and Tumor. Wherefore that it might more plainly appear, whether the bone had received any harme, and also that the congealed blood might be preffed forth, the wound was dilated, the skinne being opened by Theodore Hereus the Chirurgion, who as he was a skillfull workman and an honest man, omitted nothing which Art might doe for his cure. When he had divided the skinne, the bone was found whole, although it was much to bee feared, that it was broken, because he fell presently to the ground with the blow, vomited and shed other signes of a fractured skull; so it happened that he dyed on the one & twentieth day of his sickness. But I being called to learnes, to search how he came by his death, dividing the skull with a saw, found in the part oppofite to the blow, a great quantity of Sanguis or bloody matter, and an Abscess in the Cralia meningis, and also in the substance of the very braine, but no futures, but the two fealy ones. Therefore that is certaine which is now confirmed by the authority of Hippocrates, as also by reason and experience, that a blow may bee received on the one side, and the bone may be fractured on the oppofite, especially in such as have either no futures, or else so firmly united and closed, that they are scarce apparent.

Neither is it absurd, that the part, oppofite to that which received the stroke, of the same bone and not of diverse bones may be cloven, and in those men who have their skulls well made, and naturally distingiushed and composed with futures, and this both was and is, the true meaning of Hippocrates. This may bee the better understood, under the blow, vomited and shed other signes of a fractured skull; so it happened that he dyed on the one and twentieth day of his sickness. But I being called to learnes, to search how he came by his death, dividing the skull with a saw, found in the part oppofite to the blow, a great quantity of Sanguis or bloody matter, and an Abscess in the Calia meningis, and also in the substance of the very braine, but no futures, but the two fealy ones. Therefore that is certaine which is now confirmed by the authority of Hippocrates, as also by reason and experience, that a blow may bee received on the one side, and the bone may be fractured on the oppofite, especially in such as have either no futures, or else so firmly united and closed, that they are scarce apparent.

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Of the Greene and Bloody

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LiB.io;

forcft to put his hand to that part of the fcull. Confirmed with thefe and other fignes
formerly mentioned, let him call a council of learned Phyfitions: and for tell the
danger to the Patients friends which are there prefent, that there may no occafion of
calamitie remaine, then let him boldly perforate the fcull; for that is far better, than
forfake the patient ready to yeldc to the greatnesfe of the hidden difeafe, and fo con-
fequently to dye within a thort while after. There are four forts, or conditions of
fractures, by which the Chirurgion may be fo deceived, that when the fcull is broken
indeed, yet he may think there is no fracture. The firft is when the bone is fo de-
preffed, that it prefently rises up into its true place, and native equability. The fe-
cond is when the affure is onely capillary. The third is when the bone is fhaken on
the inside, the outer surface neverthelefe remaining whole, forasmuch as can be de-
differenced. The fourth is, when the bone is fricken on the one fide and cleft on the
other.

B

Besides the mentioned kindes of fractures by which the braine alfo suffers;
there is another kind of affe& besides nature, which alfo affailcs it by the
violent incertion of a caufe, in like manner, external; they call it the Com-
motion or shaking of the braine, whence Symptoms like thofe of a broken
feull enufe. Falling from aloft upon a foldie and hard body, dull and heaviest blowes,
as with stones,ubbcs,ftaves, the report of a piece of Ordinance,or cracke of Thun-
der, and also a blow with ones hand.

Thus as Hippocrates tells, that beautiful damoile the daughter of Nerius, when
she was twenty yeeres old, was finitten by a woman, a friend of hers, playing with her,
with her flat hand upon the fore part of the head, and then fie was taken with a giddi-
nes, and lay without breathing, & when fie came home, fie fell prefently into a great
Fever, her head aked, and her face grew red. The feventh day after there came
forth some two or three Ounces of ftincking and bloody matter about her right ear,
and fie feemed fome what better and to be at fomewhat more cafe. The feaver en-
creafed againe, and the fell into a heavie fleepinefle, and loft her fpreeb, and the
right fide of her face, was drawne up, and fie breathed with difficulty, fie had alfo a
convulfion and trembling, both her tongue failed her, and her eyes grew dull, on
the ninth day the dyed. But you muft note, that though the head be armed with
a helmet, yet by the violence of a blow, the Veines, and Arteries may be
broken, nor onely thefe which paffe through the futures, but alfo thofe which
are difperfed betweene the two tables in the Diploe, both that they might bind
the Craff Meninx to the fcull, that fo the braine might move more freely, as alfo
that they might carry the alimentary juice to the braine wanting marrow, that is,
blood to nourife it, as we have formerly thewed in our Anatomic.

But from hence proceeds the effluxe of blood running betweene the fcull, and
membranes, or elfe betweene the membraines and braine, the blood congealing
there,caufeth vehement paine, and the eyes become blinde, vomiting is caufed, the
mouth of the ftomacke suffering together with the braine, by reafon of the Nerves
of the fixt conjugation, which runne from the braine thither, and from thence are
spread over all the capacitie of the ventricle; whence becomming a partaker of the
offence it contrads it felfe, and is prefently as it were overturned, whence firft,
these things that are contained therein are expelled, and then fuch as may flow,
or come thither from the neighbouring and commun parts, as the Liver and Gall;
from all which choler, by reafon of its naturallevity and velocity, is firft expelled
and that in greateft plenty; and this is the true reafon of that vomiting, which is cau-
sed and usually follows upon fractures of the fcuII and concufions of the Braine.

Within a thort while after inflammation feizes upon the membraines and braine it
felle, which is caufed by corrupt and putrid blood proceeding from the veffeles bro-
ken
ken by the violence of the blow, and so spread over the substance of the brain.
Such inflammation communicated to the heart, and whole body by the continuation of the parts, causes a fever. But a fever, by altering the brain, causes Deth, to which if stupidity succede, the patient is very ill safe, according to that of Hippocrates, Stupidity, and doting, are ill in a wound, or blow upon the head. But if to these evils, a phlegem, and corruption of the brain ensue, together with a great difficulty of breathing, by reason of the disturbance of the Animal faculie, which from the brain impart the power of moving to the muscles of the chest, the instruments of respiration, then death must necessarily follow.

A great part of these accidents appeared in King Henry of happy memory, a little before he died. He having set in order the affairs of France, and entered into amity with the neighbouring Princes, desirous to honour the marriages of his daughter, and sister, with the famous and noble exercise of Tilting, and he himselfe running in the tilt-yard, with a blunt lance received so great a stroke upon his breast, that with the violence of the blow, the visor of his helmet flew up, and the trunchon of the broken Lance, hit him above the left eye-brow, and the musculous skinne of the forehead was torn even to the upper corner of the left eye, many splinters of the same trunchon being driven into the substance of the fore mentioned eye, the bones being not touched or broken, but the braine was so moved and shaken, that he dyed the eleventh day after the hurt. His skull being opened after his death, there was a great deal of wood found between the tur and pla mater, poured forth in the part opposite to the blow, at the middle of the future of the bade part of the head; and there appeared signs by the native colour turned yellow, that the substance of the braine was corrupted, as much as one might cover with one's thumb. Which things caused the death of the most Christian King, and not only the wounding of the eye, as many have falsely thought. For we have seen many others, who have not dyed of farre more grievous wounds in the eye.

The history of the Lord Saint John, is of late memory; he in the tilt-yard, made for that time before the Duke of Guises house, was wounded with a splinter of a broken Lance, of a fingers length and thicknesse, through the visor of his Helmet, it entering into the Orbe under the eye, and piercing some three fingers breadth deep into the head by my helps, and Gods favour hee recovered; Valesius and Duran the Kings Physicians and James the Kings Chirurgeon assisting me.

What shall I say of that great and very memorable wound of Francis of Lorraine, the Duke of Guises? He in the fight of the City of Bologne had his head so throut through with a Lance, that the point entering under his right eye by his nofe, came out at his necke betweene his earre and the vertebra, the head or Iron being broken and left in by the violence of the stroke, which stuck there so firmly, that it could not be drawn or plucked forth, without a paires of Smiths pincers. But although the strength & violence of the blow was so great, that it could not be without a fracture of the bones, a tearing and breaking of the Nerves, Veines, Arteries and other parts; yet the generous Prince by the favour of God recovered.

By which you may learn, that many die of small wounds; and other recover of great, ye very large and desperate ones. The cause of which events is chiefly and primarily to be attributed to God, the author and preserver of mankind; but secondarily to the variety and condition of temperaments. And thus much of the commotion or concussio of the brain, whereby it happens that although all the bones remains perfectly whole, yet some veines broken within by the stroke, may call forth some blood upon the membranes of the braine, which being there concreted may cause great paine, by reason whereof it blindest the eyes; if so be that the place can be found against which the paine is, and when the skime is opened, the bone looke pale, it must presently be cut out, as Celsus hath written. Now it remains, that we tell you how to make your prognosticks, in all the forementioned fractures of the skull.
EE must not neglect any wounds in the head, no not those which cut, or bruise but only the hairy scalp: but certainly much leafe, thefe which are accompanied by a fracture in the skull, for oft times all horrid symptoms follow upon them, and confequently death it follows, especially in bodies full of illhumors, or of an ill habit, such as are thefe which are affected with the Lues venerea, leprofe, droplefe, Pthifiefe and con¬sumption; for in thefe, simple wounds are hardly or never cured: for union is the cure of wounds, but this is not performed, unlefe by strength of nature, and fuffici¬ent ftreke of laudible blood: but thofe which areick of heftick fevers and con¬sumpftions, want ftreke of blood and thofe bodies which are refplent with illhumors, and of an ill habit have no afflufe or plenty of laudible blood: but all of them want the strength of nature; therefeon is almoft the fame in thofe alfo which are lately recovered of fome diftife.

Thofe wounds which are bruifed are more difficult to cure, than thofe which are cut. When the fceler is broken, than the continuity of the flefh lying over it muft necessarily be broke, unlefe it be in a Reftoration. The bones of children are more fofte, thin and replenifhed with a fanguine humifity, than thofe of old men, and therefore more subjeft to putrefation. Wherefore the wounds which happen to the bones of children, thofe and of themselves, and their owne nature they may be more eafily healed, (because they are more fofte, whereby it comes to paffe, that they may be more eafily agglutinated, neither is there fit matter wanting for their agglutination by rea¬fon of the plenty of blood laudible both in confiftence and quality) than in old men, whose bones are dryer and harder, and no refifition union, which comes by mixture, and their blood is ferous, and confequently a more unfit bond of unitie and agglutination; yet oft times through occasion of the fymptoms which follow upon them, that is putrefation and corruption, which fooner arife in a hot and moftbody, and are more eafily encreafed in a hot and tender, they ufually are more fuppreffed and difficult to heal.

The Patient lives longer of a deadly fracture in the skull, in Winter than in Sum¬mer, for that the native heat is more vigorous in that time than in this, besides, also the humors putrifhe sooner in Summer, becaufe unnatural heat is then eafily enfla¬med and more predomiinant, as many have obfervet out of Hippocrates. The Wounds of the brains and of the Meninges or membranes thereof are most commonly deadly, becaufe the action of the muscles of the cheff, and others ferving for repiration, is divers times disturbed & intercepted, whence death infues. If a fa¬well happening upon a wound of the head prefently vanifhead away, it is an ill figne, unlefe there be fome good reafon therefore, as blood-letting, purging, or the ufe of resolving local medicines, as may be gathered by Hippocrates in his Aphoriflfs. If a feaver en¬tre prefently after the beginning of a wound of the head, that is, upon the fourth or feventh day, which ufually happens, you muft judge it to be occafioned by the generating of Pus or Matter, as it is recited by Hippocrates. Neither is fuch a feaver fo much to be feared, as that which happens after the feventh day, in which time it ought to be determined: but if it happen upon the tenth or fourteenth day with cold or shaking, it is dangerous, becaufe it makes us conjecture that there is putrefation in the braine, the Meninges, or skull, through which occasion it may arife, chiefly if other fignes shall also concur, which may fhew any putrefation, as if the wound fhall be callifie and of a faint yellow colour, as flefh looks after it is wa¬ffhed.

For, as it is in Hippocrates Aphorif. 2. fet. 7. It is an ill figne if the flefh looke livide, when the bone is affefed, for that colour portends the extinction of the heat, through which occasion, the lively, or indifferently red colour of the part, fants and dyes, and the flefh thereabouts is difolved into a vitife Pus or filth.
Commonly another woe affect followes hereon, wherein the wound becoming withered and dry, lookes like falted flesh, sends forth no matter, is livide and blacke, whence you may conjecture, that the bone is corrupted, especially if it become rough, whereas it was formerly smooth and plane; for it is made rough when Caries or corruption invades it, but as the Caries encreaseth, it becomes livide and blacke, fanious matter withall sweating out of the Duple, as I have observed in many; all which are signs that the native heat is decayed, and therefore death at hand; but if such a fever be occasioned from an Erysipelas which is either present or at hand, it is usually like terrible. But you shall know by these signs, that the fever is caused by an Erysipelas & confuse of cholerick matter; if it keepe the forme of a Tertian, if the fit take them with coldnes and end in a sweat; if it be not terminated before the cholerick matter is either converted or else resolved; if the lips of the wound be from what substance, as also all the face, if the eyes be red and fiery, if the necke and chappes bee so stiffe, that he can feare bend the one, or open the other, if there be great excess of biting and pricking paine, and feare, and that farre greater than in a Phlegmon. For such an Erysipelas disposition generated of thine and hot blood, chiefly affailes the face, and that for two causes.

The first is, by reason of the natuall levity of the cholerick humor, the other because of the rarity of the skinne of these parts.

The cure of such an affect must be performed by two means, that is, evacuation and cooling with administation. If choler alone cause this tumor, we must easily bee induced to let blood, or else to give a purgation; for it is needless to needling. If on the contrary, it is ill, when it returnes from without inwards, as experience and the Authority of Hippocrates testifie: If when the bone shall become purulent, pustles shall break out on the tongue, by the dropping downe of the acride siltch or matter by the holes of the palate upon the tongue, which lies under. Now when this symptome appears, few escape. Also it is deadly when one becomes dumbe and stupid, that is, Apoplexie by a stroke or wound on the head; for it is a sign that not only the bone, but allo the braine it selfe is hurt. But oft times the hurt of the Braine proceeds so farre, that from corruption it turns to a Sphacell, in which case, they all have not onely pustles on their tongues, but some of them dye stupide and mute, otherlome with a convulsion of the opposite part; neither as yet have I observed any which have dyed with either of these symptomes, by reason of a wound in the head, who have not had the substance of their braine tainted with a Sphacell, as it hath appeared when their sculls have beene opened after their death.

Why when the braine is hurt by a wound of the head, there may follow a Convulsion of the opposite part.

Any have to this day enquired, but as yet as farre as I know it hath not been sufficiently explained, why a convulsion in wounds of the head seazes on the part opposite to the blow. Therefore I have thought good to end that controversy in this place. My reason is this, that kind of Symptome happens in the stouter part by reason of emptiefe and drynesse.
A twofold cause, but there is a twofold cause, and that wholly in the wounded part. of this dryness and dryness of the wound or opposite parts to wit: pain, and the concurrence of the spirits and humors therewith the occasion of the wound, and by reason of the pains drawing and natures violently sending help to the afflicted part.

The found part exhausted by this means both of the spirits and humors, easily falls into a Convulsion.

Hence Galen writes, God the creator of nature, hath so knit together, the triple spiritual substance of our bodies, with that yoke, and league of concord, by the productions of the passages, so wit of Nerves, Veines, and Arteries, that if one of these for take any part, the rest presently neglect it, whereby it languisheth, and by little, and little, and little, through defect of nourishment. But if any object that nature hath made the body double, for this purpose, that when one part is hurt, the other remaining safe and sound, might suffice for life and necessity. But I say, this axiom hath no truth in the vessels and passages of the body. For it hath not everywhere doubled the vessels, for there is but one only vein, appointed for the nourishment of the braine, and the membranes thereof, which is that they call the Terecule, by which when the left part is wounded, it may exhaust the nourishment of the right and found part; and though that occasion causeth it to have a convulsion, by too much dryness. Verily it is true, that when in the opposite parts, the muscles of one kind are equal in magnitude, strength, and number, the resolution of one part, makes the convulsion of the other by accident, but it is not so in the braine.

For the two parts of the braine, the right and left, each by itself performeth that which belongs thereto, without the consent, conspiration, or commerce of the opposite part; for otherwise it should follow, that the Paralyse properly so called, that is of halfe the body, which happens by resolution, caused either by mollification or obstruction residing in either part of the braine, should interfere together with it a Convulsion of the opposite part. Which notwithstanding daily experience convinces as false. Wherefore we must certainly think, that in wounds of the head wherein the braine is hurt, that inanition and want of nourishment are the causes, that the found and opposite part suffer a convulsion.

Opinion of Chalmers. Francis Dale-chalmers in his French Chirurgyny renders another reason of this question. That, (faith he) the truth of this proposition may stand firm and ratified, we must suppose, that the convulsion of the opposite part mentioned by Hippocrates, doth then only happen, when by reason of the greatness of the inflammation in the hurt part of the braine, which hath already inferred corruption, and a Gangrene to the braine and membranes thereof, and within a short time is ready to cause a phacell in the skull, so that the diseafe must be terminated by death; for in this defined state of the diseafe, and these conditions, the sense and motion must necessarily perish in the affected part, as we see it happens in other Gangrenes, through the extiction of the native heat. Besides, the passages of the animal spirit must necessarily be obstructed by the greatness of such an inflammation or phlegmon, as it cannot flow from thence to the parts of the same side lying there under, and to the neighbouring parts of the braine; and if it should flow thither, it will be unprofitable to carry the strength and facultie of sense and motion, as that which is infected and changed by admixture of purged and Gangrenous vapours. Whereby it cometh to pass, that the wounded part, deftitute of sense, is not stirred up to expel that which would be troublesome to it, if it had sense, wherefore neither are the Nerves thence aspiring seared upon, or contracted by a Convulsion.

If furthermore comes to pass, that because these same nerves are deprived of the presence and comfort of the animal spirit, and in like manner the parts of the same side, drawing from thence their sense and motion are putted with a palsy: for a palsy is caused either by the cutting or obstrucion of a Nerve, or the matterfaction, or mollification thereof by a thimne and watry humor, or so affected by some vehement distemper, that it cannot receive the Animal spirit.

But for the opposite part and the convulsion thereof, it is knowne and granted by all, that a convulsion is caused either by seperation which shortens the Nerves by distending them into breadth, or by inanition, when as the native and primitive heat
Wounds of each Part.

hearts of the Nerves being wasted, their proper fulbance becoming dry is wrinkle-
led up and contracted; or else it proceeds from the vellication, and acrimonie of
some vapour, or famous and biting humor, or from vehement or pain. So we
have knowing the falling ficknefle caused by a venenate exhalation carried, from
the foote to the braine. Also wee know that a convulsion, is caufed in the
puncture of the Nerves, when as any acrid and famous humor is flue up therein, the orifice thereof
being clofed, but in wounds of the Nerves when any Nerve is halfe cutt, there happens
a convulsion by the bitterness of the paine.

But verily in the oppolite part, there are manifeftly two of these cauSES of a con-
vulsion, that is to fay, a putride and carionlike vapour, exhaling from the hurt, and
Gangrenate part of the braine, and also a virulent acride and biting Sarcines, or bitches,
fweeting into the opposite found part, from the affected and Gangrenous the malig-
nity of which Sarcines, Hippocrates defirous to decipher, in reckoning up the deadly
fignes of a wounded head, hath expreffed it by the word lebor, and in his booke of
fractures he hath called this humor Dacryodes et non boo, [that is weeping and not di-
gested.] Therefore it is no mervale if the oppofite and found part endowed with
exquisite and perfect fense, and offended by the flowing thereto of both the vapours
and famous matter, using its own force, contend and labour as much as it can, for
the expulion of that which is trouble fomethereto. This labouring or concussion is follo-
wed (as we fee in the falling ficknefle) by a convuflion, as that which is undertaken in
vaine, death being now at hand, and nature over- ruled by the defease. Thus (faith De-
Iiechampius) muft we in my judgement determine of that propofition of Hippocrates
and Avicen.

But he addes further, in wounds of the head, which are not deadly, practitioners
observe that fometimes the hurt part is taken with the paffe, and the found with a
convulsion; otherwiles on the contrary, the wounded part is feazed by a Convuflion
and the found by a Paffe; otherwiles both of them by a Convuflion or Paffe; and
fomewhaile the one of them by a Convuflion or Paffe, the other being free from both
affected; the caufes of all which belong not to this place to explaine. Thus much De-
Iiechampius.

A Conclusion of the deadly fignes in the Wounds of the head.

Now that we may returne to our former discourse, you may certainly foretell
the patient will dye, when his reafon and judgement being perverted, hee
shall take idly, when his memory failes him; when he cannot governe his
finge, when his fight growes dark and dimme, his ears deafe, when he would call
himfie headlong from his bed, or els lies therein without any motion; when he hath
a continuall feaver with delirium, when the tongue breake out in pufles, when it
is chopp'd, and become blacke, by reafon of too much dryneffe; when the wound
growes dry, and calls forth little or no matter when as the colour of the wound which
was formerly fresh, is now become like falted fleith yellow and pale; when the Vrines,
and other excrements are suppriet when the Paffe, convuflion, appoplezie, and lafli
often fowing, with a fmall and unequall pulse, invade him. All fuch fignes fomet-
times appeare presently after the wound, otherwiles fome few days after, therefore
when the braine is hurt and wounded by the violence of the incifion, or fife-
ure, of the contuflion, compreffion, puncture, concuflion or any other fracture; the
forementiond fignes appeare prefently in the firft dayes; but when they do not appeare
tilly many days after the blow, you may know that they rife and appeare by
reafon of an inflammation and phlegmon in the braine, occafioned by the partection
of the blood poured forth upon it.

But we must obferue this by the way, which alfo belongeth to the prognostikes that
fleith is eaily regenerated, and reflowed in all parts of the head, except in that part
of the forehead, which is a little above that which lies between the eye-browes, fo
that
that it will be ulcerated ever after, and must be covered with a plaister. I believe that, in that place there is an internall cavity in the bone, full of ayre which goes to the five-like bones of the nose, by which the growth of flesh may be hindered; or else that the bone is very dense or compact in that place, so that there can scarce be sufficient juice for the regeneration of flesh, which may suffice for the regeneration of flesh; add hereunto a great confinition of excrements flowing to this ulcer, which should otherwise bee evacuated by the eyes and nose, which hinder by that means the dryness of the ulcer, and consequently the healing thereof.

Hence certainly it comes to passe, that if you desire the patient thus affected to breathe, shutting his mouth and nose, the ayre or breath will come forth of the ulcer with such force, as it will easily blow forth a lighted candle of an indifferent bignesse held thereto. Which thing I protest, I observed in a certaine man, whom I was forced to trepan in that place, by reason the bone of the forehead was broken and depreffed.

Chap. XIII

Of salutary signes in wounds of the head.

On the contrary these are salutary signes, when the patient hath no fever, is in his right minde, is well at the application or taking of any thing, sleepe well, hath his belly soluble, the wound lookes with a fresh and lively colour, casts forth digested and laudible matter, the Cresta meningue hath its motion free and no way hindered.

Yet we must note, which also is observed by the Ancients and confirmed by experience, that we must think none past danger, and free from all chance, untill the hundredeth day be past. Wherefore the Phyfitian ought fo long to have a care of his patient, that is, to consider how he behaves and governes himselfe in meat, drink, sleepe, venerie and other things.

The patient must becare of cold.

But let the Patient diligently avoid and hume cold, for many when they have beene cured of wounds of the head, by careleffe taking cold have beene brought into danger of their lives. Also you must know that the Callus whereby the bones of the scull are knit together, requires almost the space of fortie or fifty dayes to its perfect conagmentation and concretion. Though in very deed one cannot set downe a certaine number of dayes, by reason of the variety of bodies, or tempers. For it is sooner finifhed in young men, and more flowly in old; And thus much may serve for prognosticke.

Now will we treat as brefely and perspicuously as we can of the cure both in general, and particular, wherefore beginning with the general we will first prescribe a convenient diet by the moderate use of the five things not natural.

Chap. XIII.

Of the general cure of a broken scull, and of the Symptoms usually happening thereupon.

He first cure must bee, to keepe the patient in a temperate aire; and if hee bee not such of it selfe and its owne proper nature, it must be corrected by Art. As in winter hee must have a cleare fire made in his chamber, lest the smoke cause sneezing and other accidents, and the windowes and doores must bee kept that to hinder the approach of the cold ayre and winde. All the time the wound is kept open to bee dress'd, some body standing by shall hold a chafendish full of coales or a heated Iron barre over the wound, at such a distance, that a moderate heat may passe thence to the wound; and the frigidity of the encompafling ayre may be corrected by the breathing of the diffus'd heat. For cold according to the opinion of Hippocrates, is an enemie to the Braine, Bones, Nerves, and spinall marrow; it is also hurtfull to ulcers, by suppreffing their excrements, which suppreff
doe not only hinder suppuration, but also by corrosion makes them sinuous. Therefore Galeen rightly admonisheth us, to keep cold from the brain, not only in the time of Trepaning, but also afterwards. For there can no greater, nor more certaine harme befall the fractured skull, than by admitting the aire, by such as are unskilful. For if the aire should be hotter than the brain, then it could not thence be refrigerated, but if the brain should be laid open to the aire, in the midst of Summer, when it is at the hottest, yet would it be refrigerated, and unleffe it were releaved with hot things, take harme: this is the opinion of Galeen, whereby you may understand that many who have their skulls broken, dye more through default of skill in the curing, than by the greatnesse of the fracture.

But if the wound be bound up with the pledgets, clothes, and rowlers as is fit) if the arire chance to be more hot, than the patient can well endure, let it be amended by sprinkling, and drawing the chamber with cold water, oxykrate, the branches of Willowes and Vine. Neither is it sufficient to shunne the too cold arire, unleffe also you take heed of the over light, chittely untill such time as the most feared and maligne symptoms are past.

For a too great light dissipates the spirits, encreaseth paine, strengtheneth the feaver and symptoms. Hippocrates wholly forbids wine, therefore the patient in feele thereof must drinke, Barly water, faire water boiled and temperated with Julep of Roses, syrupe of Violers, vinegar and the like: water wherein bread crummes have been steeped, water and sugar, with a little juice of Lemons, or pomecrtion added thereto, and such like as the abilities and taste of the patient shall require. Let him continue such drinkes, untill he be free from maligne symptoms, which usuallly happen within fourtieene dayes.

His meat shall be pappe, ptilian, stunnynge Almond milkes, (for Almonds are said to fill the head with vapours and cause paine) mixed damaske Prunes, Raisions and Currance, seafoned with sugar, and a little cinamon (which hath a wonderfull power to comfort the stomack, and revive and exhilarate the spirites) Chickens, Pidgeons, Veale, Kid, Leverets, birds of the fields, Phaflons, blacke-birds, Turles, Partridges, Thrushes, Larkes and such like messes of good digestion, boiled with lettuce, pursaine, borage, buglofle, succory, endive and the like, are thought very convenient in this case. If the desire at any time to feed on these messes roulted, he may, only dipping them in verjuice, in the acide juices of Oranges, Citrons, Lemons, or Pomegranets, sometimes in one, and sometimes in another, according to his taste and ability. If he have a desire to eat fishe, he must make choice of Troutes, Gudgeions, Pikes and the like, which live in running and cleare waters, and not in muddy, bee shall eschew all cold fallets and pulse, because they flye up and trouble the head: it will be convenient after meate to use common drige powder, or Anifeed, Fenelfeed or Coriander comfits, also conserve of Roses, or Marmilate of Quinces to quiet up the orifice of the Ventricle, lest the head should bee offended with vapours arising from thence.

Children must eate often, but sparingly: for children cannot fast so long asthoe which are elder, because their naturall heat is more strong, wherefore they stand in neede of more nourishment, so also in winter all sorts of people require more plentiful full nourishment, for that then their flesomes are more hot than in Summer. When the fourteenth day is paft, if neither a feaver, nor any thing else forbid, he may drink wine moderately, and by little and little, encreaseth his dyet, but respetively to each ones nature, strength and custome. He shall shunne, as much as in him lies, sleepe on the daytyme, unleffe it happen that a Phegman beasse upon the braine or Meninges. For in this case it will bee expedient to sleepe on the day time, especially from morning till noon, for in this season of the day, as also in the spring, the blood is predominant in the body, according to the opinion of Hippocrates. For it is so vulgarly knowne, that it need not be spoken, that the blood when wee are awake is carried into the habite and surface of the body; but on the contrary by sleepe it is called into the noble parts, the Heart and Liver. Wherefore if that the blood by the force of the Sunne callinge his beames upon the earth, at his rising is carried into the habite of the body, should againe bee more and more diffused by the
strength and motion of watching, the inflammation in the braine and Meninges would be much encreased. Wherefore it will bee better, especiaily then to stay by sleepe the violence of the blood running into the habitation of the body, when it shall come to rage and more violently to affect that way. Watching must in like manner be moderated: for too much depraves the temper of the braine and of the habit of the whole body; it causes irritudities, pains and heavinesse of the head, and makes the wounds dry and maleigne.

But if the patient cannot sleepe by reason of the vehement of the inflammation of the braine and Meninges, Galeus willis to walk, be sincere and appoint the head, nose, temples and ears with refrigerating and humecting things, for these flupifie, and make drawe the Braine and membranes thereof, being more hot than they ought to be. Wherefore for this purpose let the temples bee anointed with Zingemum populum, or Zingemum Rufatum with a little rofe vinegar, or oxycratce. Let a sponge moistened in the decoction of white or blacke poppie seed, of the rinds of the roots of Mandragoras, of the seeds of Henbane, lettuce, purflaine, plantaine, night-shade and the like. He may also have a broath or barley creame, into which you may put an emulsion made of the seeds of white poppy, or let him have a potion made with & of lettuce water. Let the patient use these things 4 hours after meate, to procure sleepe. For sleepe doth much help confection. It repaires the effluce of the triple substance caused by watching, affwageth paine, refetheth the weary, mitigates anger and sorrow, restores the depraved reason, so that for these respects it is absolutely necessary that the patient take his naturall rest.

But if the patient shall bee plethorique, let the plenteude be leffened by blood-letting; purging and a slender diet, according to the discretion of the Physitian who shall oversee the cure.

Phebotomie according to Galens opinion, must not only be made respectively to the plente of blood; but also agreeable to the greames of the present diseafe, or that which is to come; to divert, and draw backe that humor which flows downe, by a way contrary to that which is irreparable in the part, and which must be there evacuated, or drawn to the next. Wherefore for example, if the right side owne the head be wounded, the Cephalick vein of the right armed shall be opened, unlefe a great phleatura or plenteude cause us to open the Basilica, or Median, yet if neither of them can behitly be opened, the Basilica may bee opened, although the body is not plethorique.

The like course must be observed in wounds of the left side of the head: for that is faire better by reason of the straightnesse of the fibers, than to draw blood on the opposite side, in performance whereby you must have diligent care of the strength of the patient, full feeling his pulse, unlefe a Physitian be present, so whole judgement you must then commit all that businesse. For the pulse is, in Galens opinion, the certaine flower of the strength. Wherefore we must consider the changes and inequalities thereof, for as soone as we finde it to become leffer and more flow, when the fore-head beginnes to sweate a little, when he feeleth a paine at his heart, when he is taken with a desire to vomit, or goe to floule, or with yawning, and when hee shall change his colour and his lips looke pale, then you must stop the blood as speedily as you can: otherwise there will be danger left hee pourre forth his life together with his blood. Then hee must bee refreshed with bread steeped in wine, and put into his mouth, and by rubbing his temples and nose thrilles with strong vinegar, and by lying upon his backe.

But the part shall bee eall and freed from some portion of the impaet and conjunct humor by gently scarifying the lippes of the wound, or applying of Leeches. But it shall bee diverted, by opening these weises which are neight to the wounded part, as the Vena Puppi, or that in the middest of the forehead, or of the temples, or these which are under the tongue, besides also cupping-glaffes that be applied...
applied to the shoulders sometimes, with scarification, sometimes without, neither
mutil strong, and long frictions with coarse clothes, of all the whole body, the head
excepted, be omitted during the whole time of the cure, for these will be available,
though for this, that is to draw back and dissipate by insensible transpiration the
vapours which otherwise would ascend into the head, which matters certainly in a
body that lies still and wants both the use and benefit of accustomed exercise, are
much increased.

But it shall be made manifest by this following and notable example, how power-
full blood-letting is, to lessen and mitigate the inflammation of the Brain, or the
membranes thereof in wounds of the head. I was lately called into the suburbs of
Saint Germain, there to visit a young man twenty eight years old, who lodged there
in the house of John Martin, at the signe of Saint Michael. This young man, was
one of the household servants of Master Dunsadar, the steward of the Lady Admiral
of Briam. He fell downe headlong upon the left Bregma, upon a marble pave-
ment, whence he received a contused wound, without any fracture of the skull,
and being he was of a languing temperature, by occasion of this wound, a feaver
took him on the seventeenth day with a continual delirium and inflammation of phleg-
nomous tumor of the wounded Pericranium. This same tumor possessing his whole
head and necke by continuation and sympathy of the parts, was grown to such a
bignesse, that his vialage was so much altered, that his friends knew him not; neither
could he speake, heare, or swallow any thing but what was very liquefide. Which I
observing, although I knew, that the day past, which was the eighth day of his disease,
he had fourteene fonts of blood taken from him by Germaine Agace Barber-surgeon of
the same suburbs, yet considering the integrity and constancy of the strengthe of the
patient, I thought good to bleed him again, wherefore I drew from him fourteene
fonts at that one time, when I came to him the day after, and saw that neither the
feaver, nor any of the fore mentioned symptomes were any whit remitted, or all-
waged, I forthwith tooke from him fourteene more, which in all made twenty, the
day following when I had observed, that the symptomes were no whit lesse-
ned, I durst not presume by my owne onely advice, to let him the fourth time blood
as I desired. Wherefore I brought unto him, that most famous Physician Doctor
Violent, who as soon as he felt his pulse, knowing by the vehementness thereof, the
strength of the Patient, and moreover considering the greatnesse of the inflamm-
tion and tumor which offered its selfe to his sight, he bid mee presently take out
my Lancet and open a yaine. But I lingered on my purpose, and told him, that he
had already twenty two fonts of blood taken from him: Then sayd he, Grant it
be so, and though more have beene drawne, yet must we not therefore desist from
our enterprise, especially seeing the two chiefe Indications of blood-letting yet re-
maine, that is, the greatnesse of the diseafe, and the constant strengthe of the Patient.
I being glad of this, tooke three fonts more of blood, hee standing by, and
was ready to take more; but that he withdrew mee to defer it untill the after noon,
wherefore returning after dinner I filled two fonts more, so that in all, this young
man to his great benefit, lost twenty eight fonts of blood at five times, within the
space of four days. Now the ensuing night was very pleasing to him, the feaver
left him about noone, the tumor grew much lesse, the heat of the inflammation
was abated in all parts, except in his eyelids, and the lappes of his ears, which being
ulcerated cast forth a great quantitie of pus or matter. I have recited this history pur-
pofely, to take away the childish fear which many have to draw blood in the con-
dant strengthe of the patient, and that it might appeare how speedy and certaine a
remedy it is in inflammations of the head and braine.

Now to returne from whence we digressed, you must note that nothing is so hurt-
ful in fractures and wounds of the head, as venery; not only at that time the diseafe
is present, but also long after the cure thereof. For great plenty of spirits are con-
tained in a small quantity of feed, & the greatest part thereof flames from the braines,
hence therefore all the faculties, but chiefly the Animall, are resolved, whence I have
divers times observed death to ensue in small wounds of the head, yea when they
have bene agglomerated and united.
All passions of the mind must like fort be avoided, because they by contraction and dilatation of the spirits cause great trouble in the body and mind. Let a place be chosen for the Patient as far from noise as can be, as from the ringing of bells, beatings and knockings of Smiths, Coopers, and Carpenters, and from high-ways through which they use to drive Coaches; for noise encrates paine, caueth a fever, and brings many other symptoms.

I remember when I was at Hifimson the time that it was besieged by the forces of Charles the fifth, that when the wall beaten with the Cannon, the noise of the Ordinance caused grievous torment to all those which were sick, but especially those that were wounded on their heads, so that they would say, that they thought at the discharging of every Cannon that they were cruelly strucken with flaves on that part which was wounded; and very their wounds were so angred herewith, that they bleede much, and by their paine and feavers encrated, were forced with much fighting to breathe their last.

Thus much may serve to be spoken of the cure in general, now we will out of the monuments of the ancients, treat of the particular.

CHAP. XV.

Of the particular cure of wounds of the head, and of the melancolic skinne.

Let us beginne with a simple wound, for whose cure the Chirurgion must propose one only scope, to wit, Union; for unless the wound pierce to the fcel, it is cured like other wounds of the fleshly parts of our bodies. But if it be compound, as many ways as it is complicate, so many indications fhew themselves. In thefe the chiefest care must be had of the more urgent order and cause.

Therefore if the wound shall be simple and superficial, then the haire must first bee fliaven away, then a plaster applied made of the white of an egge, bole Arminick and Aloes. The following day you must apply Emplastrum de launa, or cift de gratia Dii, until the wound be perfectly healed. But if it be deeper and penetrates even to the Pericranium, the Chirurgion shall not doe amifle, if at the second dressing he apply a digestive medicine (as they call it) which may be made of Venice Turpentine, the yolkes of egges, oyle of Roses and a little faffrodjand that shallbe used fo long, until the wound come to maturation; for then you must add honey of Roses and Barly floure to the digestive. Hence must we passe to thefe medicines, into whose composition no oily, or unctious bodies enters, fuch as this, R. Ferbinth veneta 23 j, Cypress ropar. 3 j, pul. aloes, Myrrha, & mastich. an 36. Let them all be incorporated and made into an enquet, which shall be perfectly regenerated; then it must bee cicatrized with this following powder. R. Alumenius combusti, corticus granatorium combust. an 5 j. Mifentur simul & flat pulvis: but if the wound bee fo large that it require a future, it shall have so many stitches with a needle, as need shall chance to require.

Whilcst I was at Hifimson, a certaine soldier, by falling of the earth whilefte he under-ground, had the hairy scalp so pressed downe even to the Pericranium, and so wholly separated from the beginning of the hind part of his head, even to his forehead, that it hung over his face. I went about the cure in this manner; I first washed all the wound with wine, a little warmed, that so I might wash away the congealed blood mixed with the earth; then I dyr'd it with a soft linnen cloth, and laid upon it Venice Turpentine mixed with a little Aqua Vitae wherein I had dissolved some Sanguis Draconis, Mastich and Aloes; then I restored the hanging skinne to its former place, and there staid it with some stitches being neither too flrait, nor too clofe together, for fear of paine and inflammation, (which two chiefly happen whileste the wound comes to suppuration) but only as much as should serve to flay it on every side, and to keepe forth the ayre, which by its entrance doth much harme to wounds: the
the lower sides of the wound, I filled with somewhat long and broad tents, that the matter might have passage forth. Then I applied this following cataplasm: to all the head. R. farina hard. & saburam an zjij, reflex 3jij, aceti quantum sufficiat, ftes cataplasmam forum pulsas; this had a faculty to dry, coole, repell mitigate paine and inflammation, and stay bleeding. 

I did not let him bode, because he had bled much, especially at certaine arteries which were broken neere his temples, he being dress'd after this manner grew well in a short time.

But if the wound bee made by the biting of a wilde beast, it must bee handled after another manner, as shall appeare by this following history. As many people on a time stood looking upon the Kings Lyons, who were kept in the Tilt-yard at Paris for the delight of King Henry the seconde, and at his charges. it happened that one of the feerest of them broke the things wherein he was tyed, and leaping amongt the company, he with his paws throw to the ground a Girle of some twelve years old, and taking her head in his mouth, with his teeth wounded the musculous skinne in many places, yet hurt not the skull. She fcarie at length delivered by the Master of the Lyons from the jaws of Death and the Lyon, which was there presente by chance at the same time, some fewe days after, I was was called to visit her, she was in a fea® heart, her head, shouldeers, brest and all the places where the Lyon had let his teeth, or nails, were fwalow'd, all the edges of the wounds were livide, and did flow with a wa¬ter, acrid, virulent, cadaverous, darke greene and flinking matter, fo that I could scarce endure the smell thereof, (she was alfo oppreft with pricking, biting and ver¬y great paine, which observing, that old saying came into my minde which is: That all wounds made by the bites of beafts, or of men also, doe somewhat participate of poy (bn. Wherefore there muft principally great care bee taken, of vSgjftiaenm^ Treacle and Mithridate after the following manner.

W. Mithrid. 3j theriac. 3jij. apiptia. 36. diffalvant us omnia cum aqua viva. & Cordia ben. Let the wounds be fomented and wahted with it warme, besides also Treacle and Mithridate were put in all the medicines which were either applied or put into the wound; and also of the fame with the conserve of Rofes and Buglosse dissolved in the water of Sorrell and Cardui benedictus, potions were made to strenthen the heart and vindicate it from maligne vapours.

For which purpose also this following Epithema was applied to the region of her heart. R. aqua rofar. & nemaphos. an. 3jij. aceti colloidis. 3j corollum. fanctorum al¬borum & verdurum. refar rub. pulvis oris spolis. an. 3j. Mithridaty. theriac. an. 3jij. flo cordis. pulvis sterium p. geroci. 3jij. disolve them altogether, make an Epithema and apply it to the heart with a scarler cloth or sponge, and let it bee often renewed. Verily the dreft after this manner, and the former remedies but once used, paine, inflammation and all the maligne symptoms were much leffened; to conclude free recovered, but lingered and was leave some two years after, yet at length the was perfectly refored to her health and former nature. By which you may understand, that simple wounds must be handled after another manner, than thefe which have a dy touch of poifon.

But now that we may profecute the other affe®s of the hairy scalp, say that it is conuited with a blow without a wound, that which must bee firft and alway done (that is, the affec may better appeare, and the remedies which are applied may take more effect) the hair must be shaven away, and at the firft dreftting a repelling medicine applied, such as is this following Cyprhidinum. R. col. ref. 3jij. album. pesevum. su. 3j. pulvis oris spoillis cyprisi. belant. alamin roche. refar rub. an. 3j. Let them beece incor¬porated, and make a medicine for the former use, or in rected thereof, you may apply the cataplasm prescribed before confuting of Farina Berdei. saburam. aceti & ale roifes. But such medicines must be often renewed. When the paine and defluxion is
are appealled, wee must use discoursing medicines for the dilipation of that humour which remains impacted in the part: Re: Emplastri de mucilag. Siv. ext每位, et comp. delalitios, an. 12, oleo chamam. & anethi, an. 3. mollacensur simul & fines emplastrum ad aulo dilatum. Such a fomentation will also be good. Conturb. lib. liii. lixiv. comp. lib. lii. nuxes exprim. contus. fx. &. pal. murr. cym. 3, deh. rub. ab. folutione. sol. fulv. majoranae, flaccadius, furum chamam. melati. an. M. 8. album. robae. re. fluit. expet. cedam. aromatis an. 3. su. brilliant. omnia simul & fines, and make a decoction to foment the griev'd part. After somewhat a long fomenting it, whereby it may the better discours, dry and exhalant; the concrete humour the head must be dried, & then discoursing things applied such as the Cerate described by Pip. called de minio, which hath an emollient and digestive faculty in this form. Re: Olate chamam. biliv. an. 3. oleo maffic. 3. pin. gentianae orris lib. liliburg. an. 3. viole. an. 3. remittit. cupham unum. bullantium. omnis simul bunc ad agitandum, pris. quidem. lente igne, must flee luculentier, domesticia massa solvem. surgont vel subdum. contrabat; adde in fine euena er. teres, b. f. pul- voris mastic. 3. ign. elmi. 3. cera. quantum. suffici, bullantes vis. vis. una. cumbitione simul & fines emplastrum. But if the humour be not thus discoursed, but only grow soft, then the tumor must be quickly opened, for when the flesh is inflamed and putrify'd through occasion or the contained humour, the bone under it putrifies also by the connection of the inflammation and the acrimony of the matter falling upon the bone.

When you have opened it, wash away the stink of the ulcer with this following discoursive medicine. Rs. frupi. r. ab. folutione. an. 3. terreborum. 3. pal. sac. oleo. mas. m. mela. myrrha. al. 3. 3. steed hereof if there be great putrifaction in Egypt, either by it selfe, or mixt with an equal quantity of Unguentum ap. pot. may be put into the ulcer. When the ulcer is clean'd it will be time to use scarrotike and decanting medicines.
Wounds of each Part.

agitation simul cum pilis leporinis minuto incisi, stat medicamentum. When the bleeding is stayed, you shall for the swaging of paine, droppe upon the Meninx some Pilions blood, yet warme by opening a Vine under the wing, then shall bee flewed out with this following powder, R. Alce, thuri, myrrha, sanguinis draconis an. jij, officia, fias pulvis substills. Also you may make an irrigation with Rose Vino-

gar, or some repelling medicines such as is a cataplasm ex saris, & olio refux, which may be applied until the fourth day to swage and mitigate paine.

Fique Cereis will be of good use in this case, as that which in my opinion is most fit for fractures of the feull, because it draws powerfully, releaves and dries moderately, and by reason of the finell refrethes the animal spirits, and strengthens the braine and membranes thereof, as you may easily perceive by things which enter into the composition thereof.

R. Oleafr. Omph. refinae pini, gumnio Elemi, an jij, Mafficher jij. pinguedinis qvivceis cafrati jij. folorum icton. caprifol. auhos an. M. j. ammoniaci 36. granorum tincto-

rum 36. liquis pinguedine fermenta fermentantur. et ammoniacum fluidum acto feclu-
tis. eliquantur. deinque bullant omnia fluidum in lib. jij. vini boni. tento igne aqve ad confectionem vini. deinque exprimantur; cum expressione adduntur terebinis. jis. jij. alba quantum sufficit, stat cerorum molle ad usum praedictum. Alfo let the necke, and all the pinoe of the backe bee appointed with a liniment, which hath force of mollifing the Nerves, left they fhould fulfet convulfion. Such is

Negar, or forae repelling medicine; fuch as is acataplasm ex farinis & spe:"Alfo you may make an irrigation with Rose Vine-

tarn & alba quantum sufficit, stat cerorum molle ad usum praedictum. Alfo let the necke, and all the pinoe of the backe bee appointed with a liniment, which hath force of mollifing the Nerves, left they fhould fulfet convulfion. Such is

But when the paine is swaged, we must abstaine from all fuch unctuous things, left they make the wound become ibrdide and maligne, and putrifiethe adjacent

Wherefore let this be ratified, that is, We muft not feue humide and unctuous tiae-

Wherefore let this be ratified, that is, We muft not seue humide and unctuous medicines in wounds of the head, except for curing of an isfaratnation, or the mi-
tigacit^nofpainecaulld thereby. Therefore let the bared feull bee ftrewed with

For according to Galen, wee are oft foreft for a time to omit the proper cure of

eitherwise all wine although it heates and dries by its faculcy,yet it aiftually huraeffcs

What Cepa-
lies or Ca-
magmaticke powders are.

Thus, radix Iridis florent. Hortis Heredia. & Erat. pulvis Alce Hepatica. sanguis

Draconis, maffiche, Myrrha. rad. Arthrolechie, gentiana, and generally all fuch simples

as have a drying and an abftergent faculty without biting; but you must not use thse things before the paine, inflammation and apoftumation bee past, that is then, when the membranes muft be clenfed, the bones scaled, and the feull generated.

For
For the scull by how much it is the dryer, by so much it requires and more easily endures more powerfull and dryer medicines, than the *Dura Mater* or *Perietorium*, as that which in quicknesse of sene comes farre short of these two. Wherefore when you would apply the forementioned cephalicke pouders to the *Meninges*, they must be affectuated and mixed with honey, lytripe of rotes or of wormewood and such other like, that so their too violently drying faculaty may be alayed and tempered.

**CHAP. XVII.**

*Why we use* *Trepanning,* *in the Fractures of the scull.*

Here are foure caufes of this remedy. The first is, to raife up the depreft bones, and take forth their fragments, which preffe upon the *Meninges*, or alfo upon the substance of the braine. The second is, that the *Sanier* or matter may bee evacuated, cleffed, wafted, and dryed up, which by the breaking of any vefcell is poured forth upon the *Membranes*, whereby they are, and not they onely, but the Braine alfo is in great danger of corruption. The third is, for the fitter application of medicines, convenient for the wound and fracture. The fourth is, that fo we may have something whereby we mayupply the defect of a Repelling Ligature, and such an one as may hinder defluxions; for such a Ligature cannot take place here as it may in the other parts of the body, by reafon of the Spherical or Round figure of the head, which doth not eafily admit binding; and then the defplint of the interpofed scull is a means that the vefcells lying under it (by which usuallly the defluxion comes) cannot eafily be bound with a rowler sufficicent to repel the running blood. And the externall vefcells, (to whom the force of the Ligature may come) cannot bee bound without great paine, and danger of Inflammation.

For by fuch a compreffion the pulsation of the Arteries would be intercepted, and the effluce of the fuliginous excrements which ufe to pafs through the futures of the scull, would bee fuppreffed, by reafon of the conftriuction of these futures.

Besides alfo, the blood would thus bee forced from the wounded part without, to within into the *Membranes* and *Braine*; whence paine, Inflammation, a Feaver, Absciffe, Convulsion, Palse, Apoplexie, and laftly death it feele would ensue.

And thence are the chief caufes, that Trepanning is neceffary in fractures of the scull, and not fo in the fractures of other bones.

But before you apply or put to your Trepan, the Patient must bee fitly placed or fteaded, and a double cloth muft be many times wrapped about his head, and then his head muft be fo laid, or prefled upon a Cushion or pillow, that when you come to your operation, it may not finke downe any further, but remaine firme and fteddy.

Then you must foppe the patientes cares with Cotton-wooll, that fo hee may not heare the noife made by the Trepan, or any other Instrument.

But before you put to your Trepan the bone muft be pierced with an Instrument, having a three square point, that so it may bee the more speeedy and certainly perforated. The point thereof muft be no bigger then the pin of the Trepan, that so the Trepan which is forthwith to bee applied may fland the more firmer, and not play to and againe in too wide a hole.

The shape of this Instrument is not much different from a Gimble, but that the point is three square, and not twined like a fcrew, as you may perceive, by this following figure.
Repans are round sawes, which cut the bone circularly more or lesse according to their gretnesse; they must have a pinne standing in the middle a little further out than their teeth, so to lay and hold fast the Trepan that it flitte neither to this side nor that, until it bee entred and you have cut through the first table at the least: then you must take forth the pinne, lest going quite through the bone, it may pricke or hurt the Crassa Meninges.

Wherefore when you have taken forth the pinne, you may safely turne it about until you have cut through both the tables, Your Trepons must also have a cappe, or somewhat to engiert or encompass them, lest no way hindered they cut more of the bone than we would, and in conclusion turne into the Meninges.

They must also be anointed with oyle, that so they may cut the more readily and gently, for thus Carpenters use to grease their sawes. But you must during the time of the operation, often dippe them in cold water, lest the bone by attrition become too hot: for all hard solid bodies by quicke and often turning about, become hot, but the bone made more hot and dry, is altered and changeth its nature, so that after it is cut, more of it scaleth and falls away.

Now you must know that the bone, which is touched with the Trepan, or the Airs, always callis off scales, for the speedier helping forwards whereof, you must strew upon it powders made of Rockett, Briony, wild Cucumbar and Aristolochia roots.

When the bone is sufficiently fealed let this following powder be put upon it, which hath a faculty to cover the bone with flesh, and to harden it with drynese convenient to its kind.

- Pulver. Iros Illyrica, Aloes, Manna, luris, Myrrha, Aristolochia au 5j. Flesh being by this means generated, let it be cicatrized by fireing upon it the zides of Pomegranats and Alome burnt.

Neither that the Chirurgion forcibly take away these scales, but commit that whole works to nature, which uther not to call them off before that it hath generated flesh under them. For otherwise if he doe any thing hastily, he brings new corruption to the
the bone, as we shall more at large declare, when we come to treat of the Caries or Rottenness of bones.

He which useth the Trepan, must consider this, that the head is of a round figure, and also the Trepan cut circularly, and therefore it is impossible to cut the bone equally on every side, as if it were performed upon a plane body. Furthermore the thickness of the skull is not alike in all places; wherefore you must look, and mark whether the Trepan goe not more deepe on one side than on the other, which you may doe by measuring it now and then with a pinne or needle; and if you finde that it is cut deeper on one side, than on the other, you must preffe downe the Trepan more powerfully upon the opposit part.

But seeing there are many sorts of Trepans invented and expressed by many men, yet if you weigh and rightly consider them all, you shall finde none more sale, than that I invented, and have here delineated. For it cannot pierce one jot further into the skull, than he pleases that useth it, and therefore it cannot hurt either the Meminges or the Brain. An Iron head or cover stayes as a barre, that it can penetrate no further than you shall thinke it requisite.

This head or Cover is to be drawn up and downe, and set higher and lower, as he which useth it shall thinke good, and so it will stay the Trepan that he shall not goe a hairs bredth beyond your intended depth. So that henceforwards there shall be no Chirurgion, howsoever ignorant in the performance of his Art, which by the benefit of such a Trepan may not performe this operation without any danger or feare of danger of touching the Dura Mater, the hurting whereof puts the life in jeopardy.

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The figure of our Trepan opened and taken in pieces.

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The figure of the same Trepan fitted and put together.

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A. Shewes the whole handle or Brace of the Trepan.

B. The Cover or Cap of the Trepan.

C. The ferule.

D,D. The screw pins which bold and slay the ferule and Trepan.

E. The Trepan without his pinne.

F. The Trepan swainished with its pinne.

G. Another screw pin which fastens the ferule clouer to the Trepan.

H. The Three square points.

In
In stead of the other Trepan set forth by the Author, I have thought fit to give you the figure of that Trepan that is here most in use, and the fittest therefore, as it is set forth by Mr. Doctor Crooke.

All these particulars of the Trepan taken in funder, you may see united and fitted together in the other figure. But when you cannot bring out the bone which you have cut off with your Trepan; then you may take it forth with the Terebellum or Gimblet here exprest, that is, screwing the point thereof into the hole made by the three-square pin; the handle of this Instrument may also serve in stead of a Levator.

When with the Gimblet you have drawn or taken forth that part of the skull which was cut away by the Trepan, if there shall bee any sharpe splinters in the second table, which may hurt and pricke the Membranes, when it is heaved up by the motion of the brain, they must be shaved away and planed with this Lentill fashioned scraper, being so called, because it hath the head thereof fashioned and smooth like a Lentill, lest being sharpe should hurt and pricke the membrane in the smoothing thereof.

But if by reason of the thicknesse, the skull cannot bee cut with this Lentill-like scraper, you may use the cutting scrapers and a mallet. The mallet must be of lead, that fo it may shake the braine as little as may be. But you must diligently with your mallets take forth the sharpe splinters, and pieces of the bone. But if the fractured part of the skull bee such, that it will not admit that section which is requisite for the bared bone, as when the fracture is upon the temporall muscle, or at the futures; then in the stead of one Trepan, two or three must be applied, if the necessity of the present case do require; and that within a very small compass, but they must not bee applied to the fractured part, but nigh thereto, as we shall shew more at large in the following chapter.

But the Trepan shall be applied so neere to each other, that the ring of the second may be joyned with the ring of the first and third. But if a fracture shall happen to light upon a future, then you must not apply a Trepan to it, but use two thereto on each side; he that shall doe otherwise, shall reare in funder the nervous and membraneous fibers, and also the veins and arteries by which the Dura Mater is fastned to the skull, and yeelds matter to the Pericranium. He which shall apply one Trepan, that
Of the Greene and Bloody

Of the Greene and Bloody

that is, but upon one side of the future, he shall not be able to get forth all the Saniies which is fallen downe on both sides by reason of the partition of the Crasfa Meninx which lies betweene, and rises up by the futures of the skull.

To conclude, when for what cause soever we cannot make use of a Trepan, we may employ this instrument, if so bee as much of the bone bee bared as is needfull. It is made in forme of a paire of Compasses, and by means of a screw may bee opened more or lesse as you please. You as need shall require may change the points, and put other in their places, for they may bee fitted to one side of the compass with a screw.

A paire of cutting Compasses to cut forth the skull.

A. Shewes the one legge of the cutting compasses, which as you carry it about cuts the skull.
B. The screw which fastens the point to the legge of the compasses.
C. C. Two different points which may bee fitted to the legge of the Compasses, as need shall require.
D. A great screw which fastens upon an Iron string, almost which the one of the legges of the Compass running, may bee widened and strained as you please.

Moreover it is fit that the one legge of such cutting compasses shoule stand firme and stady, whilest the other is drawne circularly to cut. Wherefore it is fit you have an Iron plate made full of little boles, whereby you may firmly stay that legge of the compass, lest it wave against your will; it is requisite that this plate be crooked, (because the head is round) that so it may be fitted to any part thereof.

A crooked Iron Plate fit to sustaine and hold stedy one legge of the Compass upon the head.
Wounds of each Part.

Another pair of Compasses of the like nature and use, which may be widened and straigntned by a screw.

Chap. XIX.

Of the places of the skull where to you may not apply a Trepan.

First of all, you shall not apply a Trepan to a bone that is so broken that it is wholly, or in the greater part thereof divided from the skull by the violence of the stroke, least by your weight and pressing of the Trepan, you force it down upon Membrane.

Secondly, you must not apply one to the fractured Sutures, for the reasons mentioned in the former chapter.

Thirdly, nor to that part of the forehead which is a little above the eye-browes, for these reasons we gave you before in the twelfth chapter. For there is in that place under the first table of the skull itself a large cavity replenished with a certaine white and rough humor, as also with a certaine spirituous and ayrie substance, placed there by nature, to prepare the aire which ascends to the braine by the Nose: unless the Chirurgion observe and be mindful hereof, he may bee deceived, supposing this cavity to be an Effradure of the bone and a depression thereof.

Fourthly, neither in the lowest parts of the skull, lest the marrowy substance of the Braine, by reason of its weight, shoulde slide through the hole made by the Trepan.

Fifthly, neither to the Bregma bones of Children, as those which as yet have not acquired just soliditie, to endure the impression of a Trepan.

Sixthly, nor to the temples by reason of the Temporall muscle, the cutting whereof in the opinion of Hippocrates causes convulsion of the opposite part. For being cut athwart it loseth its proper action, that is, to move and lift up the lower jaw; but then the opposite Temporall muscle being whole and perfect, using its strength, (his Antagoniste sufferinge it, and not refifting or labouring any thing at all to the contrary) it draws the same jaw to it, whereupon the mouth and all the parts of the face are drawn away, and suffer a Convulsion towards the sound part, the other being dissolved according to Hippocrates his rule.

For as oft as the muscles of one kinde are equall in number, magnitude and strength on each side, the resolution of the one part, causes the Convulsion of the other.

Neither doth this danger alone arise from the cutting of the Temporall muscle, but also another, which is, that this muscle when we eate and speake, is in perpetuall motion, whereby it comes to passe, that being once cut, it is scarce ever united againe, besides also the commiliture or joyning together of the fione bones lyve under it.

But by the second caution we are forbid to Trepan upon the forehead, moreover

A bone almost severed from the skull must not be Trepaned.

A notable cavite in the forehead bone.

A ruine of Hippocrates.

What con'modities arise from cutting the Temporall muscles.
also many Veines, Arteries and Nerves are pierced over the substance thereof, so that by cutting of them, there is danger of many and maligne symptoms, as paine, inflammation, a fever, a convulsion not onely of the part it selfe, but all of the whole body, whence lastly death ensues.

Wherefore let no Chirurgion be so foolie hardy, as to attempt the cutting of this muscle, &c. to Trepan the bone which lieth under it: rather let him apply his Trepan above it, or on the side thereof, or as neere to the affected part as he can, as I did in a Gentleman called Monsieur de la Brotzhe.

He in the triumphant entrance of King Henry the second, into the City of Paris, was so hurt with a stone, that the PCI Petreum or fealy bone, was broken with the violence of the blow, and the temporall muscle was vehemently contused, yet without any wound. Being called the next day (viewing the manner of the hurt, and the condition of the wounded part) thought good to bring some Physitians and Chirurgions with me to consult herc of whom when some thought it expedient presently to divide the Temporal muscle, that baring the bone we might apply a Trepan, and so take forth the broken bones: I on the contrary began earnestly to withstand this opinion, citing that saying of Hippocrates, ex libro de vulneribus Capitis, wherein Chirurgions are forbidden to cut such muscles, for feare of the forementioned symptoms, also I cited experience, how that I had often observed all those which had this muscle cut, dyed with a convulsion, but that it should be farre better, that neere above the fracture the bone should be Trepaned, not touching the Temporal muscle at all if he could. When all of them at the last had inclined to my opinion, I presently divided the mucous skinne which was over the upper part of the fracture with a three cornered section: the day following which was the third of his disease, I Trepaned him, and after I had done, some few days after, I took out some faue splinters of the broken bone; and I put in a plane leaden pipe, by which (I wishing the patient ever when I drest him to hold downe his head, to stoppe his mouth and his nofe, and then drive as much as in him lay to put forth his breath) much sanguine matter came forth, which was gathered betwixt the scull and Craque Meninx. Other stuff which sticked more fast, I washed out with a detergent decoction, injected with such a syring as is here express'd, and I did so much, God blessing my endeavours, that at length he recovered.

A Phlereadies pipe for to carry forth the Saines gathered under the scull.

The like chance and fortune befell Monsieur de Pienne at the seige of Aitets, For he as hee fought at the breach of the wall, had the bone of his Temples broken with a rope frumke out of the adjacent wall, by a piece of Ordinance shot from the Emperours campe, he presently fell downe with the blow, and catt blood out of his mouth, nofe and ears, with much vomiting, and remained dumbe & as it were senseless almost foureteene days, so that he knew none of the by-standers. He had often palpitations, and convulsive twitchings, and his face was swolne. His forehead bone was Trepaned at the side of the Temporal muscle by the hand of Peter Aubert the King's Chirurgion, and although on the 25. day, soft flesh, ended with exquisite fentit grew out of the hole made with the Trepan, whose growth could not bee hindered by Catakerytic pouders, yet at the length he recovered.

The Ancients called this kind of growing fleshe a Fungue [i. a Muschroom] for that it is softe, and growes with a small roote and broad top like a muschroom, but it increa- ses and decreases, according to the plenty of the flowing matter, and industry of the Chirurgion hindring by art the growth thereof.

This fleshe being exceedingly, they commonly call it Pleni sani et Plenè [i. the figge
Figgc of S. Figur, This disaise commonly hath its original after this manner, Even as in the bodies of Trees from the excriment of nourishment, a certaine halfe putrid grostate and vicious humor sweats through the barks, and gathered together by little and little grows into a Muthrom, so blood melancholy both in temper and constance, springs from the broken vessels of the skull and Crassa Meminous, which also is sent sometimes by nature for the necessary repairing of the flesh in these parts, whereupon a certaine funguit breeds, which in Galenis opinion, favors or paraktes of the nature and condition of the parts to which it grows, though in general it bee of the nature of malignant warts, or excresences. But for to take away such Fungui, you must apply medicines which have a specificke faculty to waft superfluous flesh; such are those which strongly dry, and gently waft and eate, such as this which follows.

R. Sabina 3ijacra 5ij, pulvis: centur simuli, supersatur caro excrescentis, or else R. Hermodactylorum umbilicum 56, make a powder for the same use. But if so be that this fungous flesh come to such growth, (as it often happens,) as to equall the bignesse of an egge, it must be betied and lstrate twitched, close to the roote with a silken thread; and when it shall fall away by reason of this binding, the place must be streued with the forementioned powders, for so it will be more certainely cured, than with more acrid cathartickes.

CHAP. XX.

Of the corruption and Caries, or rottennesse of the bones of the Head.

Here sometimes follows a corruption and Spacell of the fractured bones of the skull upon wounds of the head, which happens either because they are touched by the ayre, which they are not senstible of, or for that th' Saints purifying and detaining under them, hath infected them with like putritis, or by the cure unskillfully handled, they by the rash application of suppurating and oily medicines becoming more moist, and so undergoing an unnaturall change of their proper complexion and native temper, as we shall shew more at large when we shall trate of the reacon of the Caries in the Lact sterile. We shall now know this unnaturall change and corruption, partly by sight, that is, when from white they become to be yellowish, livid and black, partly also by putting down a probe, when as it meets with nothing smooth and slippery, but feales rough in many places, and besides also when it enters and easilly penetrates with a small thrashing downe into their substance, as if it were fungus. Yet this last signe may often deceive you, for I have divers times observed rotten bones, which being bare had long suffred the injury of the ayre, to become so hard that a Trepan would scarce pierce them; for it is putrid humidity which makes the bones soft and fungus, but the ayre by drying them exhausts this humidity and lastly dryes it, whence follows such contumacious hardneffe. This signe will bee farre more certaine, if the fleeth which is growne upon the bone be more soft than is for, loose and have little or no sense or feeling. You may correct and amend this corruption of the bone with cauteries aswell actual, as potential, or with the powders of Aloes, Gentian, Arisolveocha, centuary, cortex pini, as R. radic. Irees, Flor. arisolveochas an, 3ij, centaur, 3ij, corticis pinui 56, Mife e or stis pulvis subtilefsems of is supersanguin. But if it be much corrupct, it must bee scraped forth with your Scaipe. And you must expect the falling or falling of the corrupt bone from the found, and not forcibely procure it: for otherwise the found bone, which lyes under it, being as yet covered with no flesh growing over it, would be corrupted by the appulse, or touch of the ayre. Y et you shall by little and little gently move and shake rotten bones with your probe, that so they may more easilly fall with and leffe trouble to nature, But note by the way that the falling of the bone which hath environed the Trepan, is commonly performed in the space of forty or fifty days. So long also will that causd by the unusal appulse or touch of
of the airc, or application of a Cautery, or the aspersion of Cephalicke pouders; besides also in the same number of days broken bones may be united and joyned together by a Callus, which is to them as aScarre, yet sometimes sooner, somewhiles later according to the variety of the ages, tempers and habits of divers men.

But if the Callis or Bostances can neither by these fore mentioned remedies be overcome and amended, neither the loofed continuity agglutinated not united, you must give the patient a vulnerary potion, for I have found happy success in many. But sometimes not onely a certaine portion of the bone, is taken with a Callis, but all the whole is often feazed upon with phaecell, and all falls out. For in Hippocrates opinion, Lib. de vulneribus capitis, the bone of the feul falling broken falls from the found more or leefe, according to the violence of the blow; which also is confirmed by experience.

For which purpose I thinke good in this place to recite a History, whereof I was an eye witnesse, whilst I served as Chirurgeon in Picomont under the Marshal de Montejan (who was the Kings Lieutenant there). It happened that a Lackey of Monsieur de Goulaine came to me to be cures; he had the Bregma bone of the left side broken with a sword, neither yet did the fracture come to the second Table, a few days after his recovery the bone being agglutinated and united, it came to passe that a company of Gascoigne soldiers his countrymen came to Turin, with whom one morning he eate plentifully Tripe fryed with Onions and spices, & drinke a great quantitie of strong wine. Whereupon he presently fell into a continuall Fever, and lost his speech and understandings; his head swelled, his eyes looked red and fiery and as though they would have startet out of his head. Which things being considered, I let him blood, having first (by the Physicians advice) given him a Glister, and applied to his head such things as were fit, and also I laboured with Frictions and Ligatures of the extreme parts to draw the humors downward; yet for all this the part of the head which was formerly affected begun to impotumate; which being opened, there came forth a great quantity of matter, and at the length the mucusious skorne and Pericranium sinking downe, both the Tables of the skull became putrified and rotten, as you might know by their blacknesse and fench. Now to take away this corruption, I applied at certaine times actual cauteries, both to amend the corruption and lappate that which was altered but marke, after some months space, a great number of worms came forth by the holes of the rotten bones from underneath the putrified skull; which moved me to haften the preparation and falling away of the putrid bones. Which being done, upon the very 

A great falling away of a cors

A bone.

The curesst craft of impo-
sion. 

of the Greene and Bloody

Lib. 10.
apply it to the part, the better to fit it, but presently after they freely convey it into their proper places, and so leave the patient thus confined. Others brag that they are able to put the dried rind of a gourd into the place of the lost bone, and fasten it on to defend the part; and thus they grovelly abuse those which are ignorant in the Art. For this is so far from being done that nature will not suffer nor endure so much as an hair, or any other small body to be shut up in a wound when it is cicatrizéd; neither is the reason alike of a leaden bullet which fills into the body lies there for many yeeres without any harme to the patient; for although lead have a certaine familiarity with mans body, yet is it at length (unless the density of the oppos'd flesh, ligament, tendon, or some other such like substance hinder) thrust forth by nature impatient of all strange bodies. And thus much of the rottenness and corruption of fractur'd bones; now must we speake of the discummodities which betial the Meninges by wounds, whereby the skull is broken.

Of the discummodities which happen to the Cerebra Meninges by fractures of the skull.

Any discummodities chiefly happen to the Cerebra Meninges by a fractur'd skull and rash Trepaning thereof; for it sometimes chances to bee cut and torned. Agglutination is a remedy for this diseafe, which Hippocrates wishes to be procured with the juice of Nepeta (that is, of that calamint, which smells like Penny-royall) mixed with barley flource. In stead whereof this following powder having the like faculty may take place.

R. Nepeta 3ij. Myrrha, aloes, mastiches, sanguinæ Dracum, an. 3j. croci, faroceles an. 3B. makhes or spiculis sabulitis. But to purge the blood and matter which is gathered and yess between the Cerebra Meninges and skull, you shall put in a Tent made of a ragge twined up some foure or five doubles; and steeped in fyrupe of Roses or wormwood and a little aqua vitæ; for thus you shall press downe both the Cerebra Meninges, left lifted up by the accustomed and native pulsation of the braine, it should be hurt by the edges of the skull yet rough by reason of the sharpe splinters of the bone lately Trepaned, and give free passage forth for the matter there contained. But as ofte as you shall drefse the patient, you shall renew the forementioned Tent, untill all the matter be purged forth. And to often alfo you shall press downe with the following instrument the Dura Mater, and bid the patient to strive to put forth his breath, flouping his mouth and nose, that so the matter may more easely be evacuated. This instrument wherewith you shall hold downe the Dura Mater, must have the end round, shpellit and smooth as it is here express.

Aft instrument to press and hold downe the Dura Mater, so to make way for the passage forth of the Sapes or Matter.

And let there be lad upon the Dura Mater streewed over with the formerly mentioned powder, a spunge may be stoned and wrung forth of a drying decoction made of aromaticke and cephalick things, such as this which followes.

R. Fol. salvi major, betonica, rosmarinus, ziper, rub. absinthi, Myrtil, florum chamæm, melil. fleched, ustragans an. M. iij. B. rad. cyperi, salam. aromata, iros, Caryophylatae, angélica, an. B. fulicam omnia (sc. cushion artem cum aqua fraborum & vino rubro, fat decollis ad aquam dichum.) And in stead hereof you may use claret with a little aqua vitæ, that so the coneyced matter may bee evacuated and dried up. A spunge is fitter for this purpose to draw than a linen ragge or any other thing, both because it is good of its felfe to draw forth the humidity, and alfo for that by its softnesse it yeelds...
Of the Greene and Bloody

... yields to the pulsation of the Braine. Then apply to the wound and all the adjoining parts, an emplater of Dioscallithes dissolved with vinegar, or wine, or oyle of Roses, that to the platter may be the more cold and soft. For in Hippocrates' opinion, nothing which is any thing heavy or hard must be applied to wounds of the head, neither must it be bound with too strait a ligature, nor hard ligature, for feare of paine and inflammation.

For Galenists, (as he had it from Mantineo) that a certaine man lost his eyes by inflammation and impotstomation arising, for that an Apothecarie had used too strait a ligature to his head and face; for this strait ligature so presed the futures, that the fuliginous vapours, which used to passe through them and the pores of the skull, were stopped from passing that way; besides, the beating of the Arteries was interrupted and hindered, by which means the paine and inflammation so encreased, that his eyes were rent and broke in sunder and fell forth of their orbe.

Wherefore Hippocrates rightly commends an indifferent ligature, also hee fitly recommends the emplasters we must apply to the head, as also the cloathes wherewith it is bound up, to bee of softe and thinne linnen, or of Cotton, or woold. When the patient is in dresling, if there come much matter out of the wound, you shall with him if hee can, lyce upon the wound, and now and then by fits to strive to breathe, stopping his mouth and nofe, that the braine lifted and swollne upwards, the matter may bee the more readily caft forth; otherwife suffer him to lyce in his bed, as he shall best like of, and shall be least troubleome to him.

You may with good success put upon the Craffa Mesiuxis oyle of Turpentine with a small quantity of aqua viva and a little Aloes and Saffron finely powdered, to cleanse or draw forth the matter. Or else,

R. Melis rofar, |ijd. farina hord. pitlver* alees^ Maflich, trees florcsst, ass, 36. 4y

This let them be incorporated together and make a deterusive medicine for the forefaide ufe.

Sometimes also the Craffa Mesiuxis is inflamed after Trepanning, and swolne by a Poisonous, that impatient of its place, it rifes out of the hole made by the Trepan, and lifts its felt much higher than the skull, whence grievous symptomes follow. Wherefore to prevent death, of which then wee ought to bee afraid, wee must enlarge the former hole with our cutting mullets, that the matter contained under the skull, by reason of whole quantity the membraine swells, may the more freely breathe and passe forth, and then wee must goe about by the prescrit of the Phisition to let him bleed againe, to purge and diet him. The inflammation shall be resisted by the application of contrary remedies, as this following somentation.

Sometimes also the Craffa Mesiuxis or alfo by the pucrifadion of the proper substance, that the Dura mater becomes blacke. Of which symptome the Chirurgion must have a great and speciall care.

Therefore that thou mayst take away the blackneffe, caufed by the vehementic of the contusion, you shall put upon it oyle of eggs with a little Aqua Viva, and...
and a small quantity of Saffron and Orris roots in fine powder; you shall also make a fomentation of diuretic and aromatic things boiled in water and wine, and Pliny Ceret formerly described shall be applied. But if the harme come from congealed blood, you shall withstand it with this following remedy.

R Aquae Vitri Iij. granum, tinctorum in tanem pulvorum tritorum Iij. croce, Iij. For congess led blood.

Mellis refat. Iij. farceol. Iij. Lector & fulm biliantum omnia & de colatura in

fanum, quonque nigritieis fucentes obsessas. If this affect come by the touch of
the aire, it shall be helped with this following remedy.


For the last received by the aire.

But if this affect proceeds from the rash use of medicines, it must be helped by application of things contrary. For thus the offence caused by the readying use of molyb and oyl medicines, maybe amended by using canagmaticke & cephalick powders; borne the heart and biting of aecrd medicines, that be mitigated by the contrary use of gentile things; for both humide and aecrd things somewhat long used make the part looke blacke, that truely by generating and heaping up filth, but this by the burning and hardening heart. But when such blackness proceed from purification, John de Vigo commends the following remedie.

R Aquae viti Iij. mellis refat. Ij. But if the affect be growne so contagious that it will not yeeld to this gentle remedie, then this following will bee convenient.


tas Iij. farceol. myrrha, aloes, an. Ij. vini albi bont & odoriferi, Ij. biliantum lecteur

omnia fumul, calentum ad usum dictium. But if the force of the purifation

be fo furious, that it will not yeeld to these remedies, it will be helped with Aegyp-
tiaca (made with plantaine water in stead of Vinegar) used alone by itself, or with

the powder of Mercury alone by itself, or mixt with the powder of Aloeme. Neither

must we bee afraid to use such remedies especially in this extreme diseafe of the

Dura Mater; for in Galen's opinion the Crassa Membris after the scull is Trepaned

delights in medicines that are acride, that is, strong and very drying, especially if it

have no phlegmon; and this for two reasons, the first is, for that hard and dry bod-

ies, such as membraneous bodies are, be not easily affected unlese by strong med-

dicines; the other is, which must be the chief and prime care of the Physitian, to

preferve and restore the native temper of the part by things of like temper to it.

But if the auditory passage not onely reaching to the hard membranes of the

Braine, but also touching the Nerve which defends ino it from the braine, suffer

molt vehement medicines, though it be placed fo necer; certainly the Crassa Membris

will endure them farre more easely and without barme.

But if by these means the purifation be not restrained, and the tumor be encrea-

fed so much, that the Dura Mater rising farre above the scull, remains unmove-

able, blacke and dry, and the patients eyes looke fiery, stand forth of his head and

rowne up and downe with unequietness and a phrime, and these to many ill acci-

dents be not fugitive, but confiant; then know that death is at hand, both by reason

of the corrupzione of the grangrene of a noble part, as also by extinction of the native

heate.
What the conclusion of the brain is.

The opening of the Penis Puppis.

The cure of the brain being shaken, or moved.

We have formerly declared the causes, signs and symptoms of the concussion, or shaking of the brain, without any wound of the muscular skin, or fracture of the bone, wherefore for the present I will treat of the cure.

Therefore in this case, for that there is fear that some veselli is broken under the skull, it is fit presently to open the cephalic vein. And let blood be plentifully taken according to the strength of the patient, as also respectively to the diseafethat which is present, and like to ensue, taking the advice of a Physician.

Then when you have shaven away the hair, you shall apply to the whole head and often renew the formentioned cataplasmæ, Ex furitis, also rofææ, oxymitre, and other like cold and moist repelling medicines. But you must first set dry, and too affirriment medicines must bee shunned, such as are Fungentum de bolo and the like; for they obstruct too vehemently, and hinder the passage of the vapours both by the futures and the hidden pores of the skull. Wherefore they do not only not hinder the inflammation, but fetch it when it is absent, or encrate it, when present. The belly shall bee loosed with a glider, and the acrid vapours drain from the head, for which purpose also it will bee good, to make frictions from above downwards, to make straight ligatures on the extreme parts, to fallen large cupping-glases with much flame to the shoulder and the spinal narrow, that so the revulsion of the blood running violently upwards to the braine, and ready to cause a phlegmon, may be the greater. The following day it will be convenient to open the vena Puppis, which is feated upon the Lambdall future, by reason of the community it hath with the veines of the braine, and flushing the mouth and nose to strive powerfully to breathe. For thus the membranes well up, and the blood gathered betwixt them and the skull is thrust forth, but not that which is shut up in the braine and membranes, of which if there be any great quantity, the case is almoft desperate, unless nature assisteth with stronger force, cast it forth turned into Vos. But also after a few days the vena frontis or forehead vein may be opened, as also the Temporal Arteries and Veines under the tongue, that the conjunct matter may bee drawn forth by so many open passages.

In the mean spare the Patient must keepe a spare diet, and abstain from wine, especially untill the fourteenth day, for that untill that time the fearefull syraptomes commonly reign. But repelling medicines must be used untill the fourteenth day be past, then we must come to difeullling medicines, beginning with the more milde, such as is this following decoction.

A difeullling
fomentation.

A caution in
fomenting the
head.

A description
of Pyces
Cerate.
Wounds of each Part.

omnia miscentur simul, & sicut mixtura, quadrat inter formam emulsivi & cerosi.

Pige faith, that one of the Duke of Yorks Gentlemen found the virtue hereof to his great good. Hee fell from his horse with his head downewards upon hard Marble, he lay as if hee had bene dead, the blood gout out of his nose, mouth and ears, and all his face was swolllen and of a livide colour; hee remained dumbe twenty dayes, taking no meat but dissolved gellies, and Chicken, and Capon broth with it, yet he recovered, but lost his memorie, and laundered in his speech all his life after. To which purpose is that Aphorisme of Hippocrates: Those which have their Braine broken by what cause foever, must of necessity become dumbe; yea also, as Galien observes in his commentary, lose both their fencit and motion. That Cerat is not of small efficacie, but of marvellous and admirable force, which could hinder the generating of an abifse, which was incident to the braine by reason of the fall.

Yet there be many men so farre from yeelding to reafbri, that they stiffly deny there is any immediate can be in the brain, and augmenting this error with another; they deny that any who have a portion of the braine cut off can recover, or rife againe, but the authority of ancient writers and experience doe abundantly refelt the vanitie of the reasons whereon they relye. Now for the fift in the opinion of Hippocrates: If those which have great paine in their heads have either pus, water or blood flowing from their Nofe, mouth or care; it helps their disease. But Galen, Rhafis and Avicen affirme that Sanies generated in the braine disburdens its selfe by the nose, mouth or ears; and I my felfe have obserued many who had the like happen to them.

I was told by Profebus Coulan Chirurgion to Monsieur de Lengey, that he saw a certaine young man in the towne of Mons, who often used to ring a great bell bee a history. Once hanging in fport upon the rope, was snatcht up therewith and fell with his head full upon the pavement; he lay mute, was deprav of his fentes and understanding, and was besides hard bound in his belly. Wherefore presently a fever and delirium with other horrid symptomes affayled him, for he was not Trepaned because there appeared no figne of fractur in the scull: on the seaventh day hee fell into a great sweace with often sneefing, by the violence whereof a great quantity of matter and fou flowed forth of his care, mouth and nofe, then hee was ealed of all his symptomes, and recovered his health.

Now for the fecond, Galen affirmes that he saw a Boy in Smyrna of Ionia that recoverd of a great wound of the braine, but yet such an one did not penetrate to any of the ventricles.

But Guido of Cauliac faith, he saw one which lived and recoverd after a great portion of the braine fell out by reason of a wound received on the hind part of his head.

In the yeare of our Lord 1538, while I was Chirurgion to the Marshall of Montefjanz in Tourn, I had one of his Pages in cure, who playing at quoitzes received a wound with a stone upon the right Bregma with a fractur, and so great an effraduco of the bone, that the quantity of half a haful Nut of the braine came forth theretw. Which I obseruing, presently pronounced the wound to bee deadly; a Phyitian which was prefent contradicted my opinion, affirming that subfstance was no portion of the braine, but a certaine f#=y body. But I with reafon and experience in presence of great company of Gentlemen, convinced the pertinacie of the Man; for that fat cannot be generated under the sull, for although the parts there contained be cold, yet becaufc they are heated by the abundance of the most hot and fubtle animall fpirits, and the heat of vapours rising thither from all the body, they doe not fuffer fat to concreace about them. But with experience, for that in the diffeating of dead bodys, there was never any fat obserued there; besides also fat will thwanne on the top of water, but this subfance as marrowie, call into the water prefently funke to the bottome.

Lastly, if put to the fire becomes liquide and mels; but this subfance being laved upon a hot iron, became dry, thrunke up and contractd it felfe like a piece of leather, but diffolved not at all. Wherefore all those which were prefent cryed out, that my judgement was right of that subfance that came forth of the sull. Yet

though
though it was cut away, Page recovered perfectly, but that he continued deafe all his life after.

Chap. XXIII.

Of the wounds of the face.

A thing to be observed in wounds of the eye-browes.

This is chiefly to be observed in wounds of the eye-browes, that they are oftentimes cut so overwheit, that the muscles, and flethy pannicle which move and lift them up, are wholly rent and tore. In which case the eye liddes cannot be opened, and the eyes remaine covered, and as it were shut up in the cafes of their lids; so that even after the agglutination of the wound, if the patient would looke upon any thing, he is for to hold up the eye-lids with his hand, with which infirmity I have seene many troubled, yet oft times not so much by the violence of the wound, as by the unskilfulness of the Chirurgion who cured them, that is, by the negligent application of boulsters, an unfit ligature and more unfit future. In this case the skilful Chirurgion which is called to the patient shal cut off as much of the skinne and flethy pannicle as shall serve the eyelids, that so they may by their owne strength hold and keepe open, without the helpe of the hand; then he shall row the wound as is fit, with such a fitch as the Furriers, and Glovers use, and then he shall poure thereon some of the balfeome of my description, and shall lay such a medicine to the neighbouring parts.

Roger, or, in quiet contrary to the falling down of the eye-lids.

There sometimes happens a quite contrary accident in wounds of the eye-browes, that is, when the eye-lids stand so up that the patient is for to sleepe with his eyes open, wherefore those which are so affected are called by the Greeks Lagophthalmi. The cause of this affeiff is often internall, a carbuncle or other kind of abscefe, as a blow or stroake. It shal be cured by a crooked or semicircular incision made above the eye-lidde, but fo that the extremes of the semicircle bend downwards, that they may be prefixed downe and ioyned as much as is needfull to amend the slife of the eye-lidde. But you must not violate the gristle with your Instrument, for fo they could no more be lifted up, the resodie of the cure must bee performed as is fit.
Lib. 10.

Wounds of each Part.

Chap. XXIII.

Wounds of the eyes.

Wounds of the eyes are made by the violence of things prickings, cutting, bruising, or otherwise breaking the continuity. But the cure must always be varied according to the variety of the causes and differences. The first head of the cure is, that if any strange and heterogeneous body shall be fallen into the eyes, let it be taken forth as soon as you can, lifting and turning up the eyelid with the end of a spatula. But if you cannot discern this stone or little body, then put three or four seeds of Clary, or Oculum Christi into the pained eye. For these seeds are thought to have a faculty to cleanse the eyes and take out the stones, which are not fastned deep in, nor doe too stubbornly adhere to the membranes. For in this case, you shall use this following instrument, for hereewith we open the eyelids the further, putting it between them and the eye, and also keep the eye steady by gently pressing it, that so with our mullets we may pull out the extraneous body; this is the figure of such an instrument.

The denomination of a Speculum oculi, fit to dilate and hold asunder the eyelids, and keep the eye steady, is such, that it may be distended and contracted according to the greatness of the eye.

All strange bodies taken out, let this medicine be put into the eye. Take the straings of a dozen eggs, let them be beaten in a lead Mortar with a little Rose water, and so put into the eye, but let this repercussive be laid upon the eye and the neighbouring parts. R. aluminum, ovo, muri, pulvis, aluminum rube, combusti Si, fanguis Draconi, &que fojar, & plantag, an si, agitentur simul, make a repercussive, which you may frequently use. Or else apply cheese curds well wrung, mixed with Rose water, the white of an Egg, and as much acacia as shall suffice. This which followeth doth more powerfully stay the flowing humor. R. gum. arab. & trages, an. 3ij ptilij. cydon. semen, porul. plant. zumach, an. 3ij. fuit muscorum aqua, plantag. folan. & 3ij. refir. concinnetur collyrium, of which you may drop some both within and about the eye.

But note, that all such remedies must be applied warme, both that they may the better penetrate by their moderate heat, as also for that all actual cold things are hurtfull to the eyes and sight, because they dull the sight by incrusting the visive spirits. For I have knowne many who have become dull of sight by the frequent using of medicines actually cold to the eyes.

I have on the contrary seen not a few, who have recovered with the use of such like medicines, who have had any part of their eye (to it were not the pupilla or Apple of the eye) so pricked with a needle or bodkin, that much of the watry humour ran forth thereat.

The milke of a woman which suckles a girl (for that is reputed the cooler) mitigates paine and clenches, if it bee milked out of the Dog into the eye; to which purpose also the blood of Turtles, Pidgeons or Chickens much conduces, being dropped into the eye by opening a veine under their wings. Also this following cataplasm alleviageth paine and inflammation, and hindereth defluxion, being applied to the eye.
and the adjacent parts. R. Carnis pomerum sub cinere calido decocitorum, Sub verocis ovorum rum, iij. caesia sibilia recerco extracta, 20, mucunigia psylli, althea & cydon, an, 25, farum, bortes parum, incoporum omnia sum, fist cataplasma.

Alfo theepeus lungs boyled in milke and applied warme, and changed as they grow cold, are good to atwage paine. But if the too violent heate and paine shall not yeeld to fuch medicines, but require more vehement, then Folium Hoysiam, m. j., sub cinerius coquatur, ague in mortario cum mucunigine feminis julys, 2o, leoninum, extract in aqua fulani & plant. pollica, torunthen let this medicine be wrapped in a linen cloth and applied to the eyes and temples. The mucilages of Pflium, or Fles, and Quince seeds extracted in a decoction of Poppy heads and mixed with a little Opium and Rofe water, are used for the fame purpofe. But when there is neede of detergent and frecocicke medicines, then R. Syp. rofarr. fiscar. 3, aq. fante, & vits a. 3, jij. aloes late, olbani an. 3, mixe them for the farefayd use. The galls of Scares, Hares, and Partridges dissolved in eye-bright and fennell water, are fit for cleaning fuch wounds, as also this following Cebyrium.

R. Agua bordei 3, melis defpumati 3, aloes late in aqua plantaginis & Sacchari cand. 3, fist caliyrium. Alto this enting medicine is very larcocike.

A farcoticke R. mucunig. gummi olbani, arabici, tragacanth. & farcoco, in ag. bortes extracta, 3, aloes late, olbani an. 3, mixe them for the farefayd use. The galls of Scares, Hares, and Partridges dissolved in eye-bright and fennell water, are fit for cleaning fuch wounds.

A drying for the eyes. R. Nucis capreol, gallar. belauff, an, 3, plantag. alsith, hopi, fo. chem. rof. rub. an. M, 3, balzanti simul cinerum aqua faborum, & fist decocitorum pro fo componia.

Besides also you may apply a cataplasme made of barley and bane flower, the powders of Mahucke, Mirrhe, and Aloes, and some of the lati described decoction. The tumor beginning to decline, I droppe the flowing liquor into the eye, which hath a very astringent, drying and strengthening faculty.

Roast a new laid egg in Embres until it be hard, then pill off the shell, take forth the yolke, and in place thereof put a trefuple of Roman Vitrioli in fine powder, then put it in a linen cloath and wraight it hard forth into some cleane thing, and droppe thereof for some dayes into the eye, with a little fraitches water wherein Sumach and Rofe leaves have beene boyled. I have found by experience the certaine force of this remedy, but if not withifanding there be a true fesshy exccrcefracne upon the eye, it may be taken away by this following powder.

R. Of allepia. & refia ovorum calcinata an. 3, fist pulvis. Calcined Vitriole, burnt Aloeme and the like may bee commodidly used to this purpofe. Yet you muft warily make ufe of all fuch things, and always lay repercussives about the eye, that no harme enuoe thereof.

For diverfe times acride humors fall downe into the eye with fuch violence, that they breake the Hornie coate, whereupon the humors of the eye are poured out. Remember also, that in diseases of the eyes, the Pafient lye with his head somewhat high, and that he keepe that not onely the pained, but also the found eye, because reft is alwayes necessary for the grieved part. But one eye cannot bee moved without some motion of the other by reafon of the connexion the have by their optick and moving nerves, both the Mensing, the Pericorium, Veines, and Arteries, which is
the cause that when the one suffers, the other in some sort partakes therewith.

But if we cannot prevail by all these formerly prescribed medicines fit to stay the defluxion, then it remains, that we apply a Seton to the necke, for it is a singular remedy against inveterate defluxions into the eyes. For we know by daily experience, that many who have had their sight dulled by a long and great defluxion, so that they were almost blind, have by little and little recovered their former splendour and transparency of sight, when matter once begun to bee evacuated by the Seton.

The truth hereof appeared in Paul the Italian Goldsmith, who dwelt neere the History, Augustine Friers. For he having used many medicines of divers Physitians, and Chirurgions in vaine, when he was almost blind, he applying a Seton by mine advice, began by little and little to see better according to the quantity of the matter which was evacuated, until at length he perfectly recovered his sight. But at last growing weary of the Seton which he had worn for a yeere (although matter came dayly forth thereof) yet he would have it taken forth, and healed up; but this way of evacuation being shut up, and the humor againe beginning to flow into his eyes, so that he was in danger to become blinde, he called me and made me againe to apply the Seton in his necke. Whereby recovering his former soundneffe and perfection of sight, he yet weares the Seton.

Also once freed by this kinde of remedy, by the appointment of the most learned Physition Hellerius; a certaine young man of twenty yeeres old, from the falling sickneffe, who before had many fits thereof, the lechorous humors the feeders of this disease being by this means, as it is most probable, drawne away and evacuated.

Wherefore seeing a Seton is of this ufe, I have thought good in this place to set downe in writing and by figure, the manner of making thereof, for the behoofe of young practitioners. Wish the patient to sit on a low stool, and to bend downe his head, that so the skinne and fleshy part may be relaxed; then must you with your fingers pluck up and loose the skinne from the muscles, and take hold of as much thereof as you can with your pincers, not touching the muscles of the necke for fear of a convulsion: and other symptoms; you shall then twitch the skinne which is held in the pincers most hard, when you shall thrust the hot Iron through the holes made in the midst of it, that also the nerves being so twitched, the dolorificke sense may the less come to the part. The wound must be made or burnt in long wayes and not wharting: then the matters may be the better evacuated by the straight fibers. But the cautery or iron must have a three or elle a foure-square point and that sharpe, that so it may the more easily and speedily enter. Then keeping the pincers immoveable, let him draw through the passage made by the cautery a needle thred with a three or foure doubled thred of Cotton [or rather a skeane of filke] moistened in the white of an egge and oyle of Roses*; then after you have applyed pledgets dipped in the same medicin, bind up the part with a convenient ligature. The day following the necke must be annointed with oyle of Rose, and the pledgets dipped in the former medicin applied for some daies after. But it will bee convenient to moisten the Seton with a digestive made of the yolke of an Egge and oyle of Rose, until the ulcer cast forth much matter; then you shall annoint the Cotton thred with this following medicin. Ret terebinthus ven. 3iiiij. frurip rofit. & abintby an. 38. palmaris leuc. diacryd. agarici trochisati. & beti. an. 38. incorporantur omnibus simul et stat medicamentum. Which you shall use so long, as you intend to keepe open the ulcer. For it hath a facultie to draw the humors from the face, and clenfe without biting.
I have found not long since by experience, that the aperation made with a long thick Triangular needle of a good length like to a large Pick-needle, is less painfull, than that which is performed with the actual cautery, which I formerly mentioned. Wherefore I would advise the young Chirurgeon, that hee no more use the foresayd actual cautery. I have here given you the figure of the Needle.

The Figure of a Triangular Needle.

Chap. XXV.

Of Wounds of the Cheeke.

Being a wound of the cheeke seemes to require a future, it must have a dry future (as they term it) lest that the scarre should become deformed. For that deformity is very greevous to many, as to women who are highly pleas'd with their beauties. Therefore you shall spread two pieces of new cloath of indifferent fineness, and proportionable bignesse with this ensuing medicine.

Res pulveris mastichini, safranum Draconis, thuris, farinae volatilis, tragacanthae contra-f, zizyphi, pici, sarcodilla un. &i. pici nigra 51b, albuminae ovis un quo sufficiantium, fit medicamentum. Apply the pieces of cloath spread with this on each side of the wound one, some fingers breadth asunder, and let it alone till it be hard dryed to the skinne. Then you shall so draw them together with your needle and thred, that the flesh by their sticking may also follow, and bee mutually adjoyncd, as you may see it here exprest. The wound shall be agglutinated by this means, together with the use of fit medicines, pledgets, ligatures. But all the ligatures and stayes which shall be useed for that purpofe must be fastened to the patients night-lappe.

But when the wound is great and deep, and the lips thereof are much diftant the one from the other, there can be no use of such a dry future. Wherefore you must use a three or foure square needle (that so it may the more readily and eafily enter into the flesh) being thred with a waxed thred; and with this you must thrust through the lips of the wound, and leave the needle sticking in the wound, and then wrappe the thred to and againe over the ends thereof eight or ten times, just after that manner which women use to faften a needle with thred in it, upon their fleeces, or Tailors to their hatts or capps, that they may not lose them.
The needle thus fastened, shall bee there until the perfect agglutination of the wound; this kind of future is used in the wounds of the lips, as also in hare-lips, for so we commonly call lips which are cleft from the first conformation in the womb, by the error of the forming faculty. But such a future will help nothing to agglutination, if there ly or remaine any skin betweene the lips of the wound; Wherefore you shall cut away whatsoever thereof shall be there, otherwise you must expect no union. Other kinds of futures are of no great use in wounds of these parts, for out of the necessity of eating and speaking, they are in perpetuall motion; wherefore a thred would cut the flesh; for which reason you shall take up much flesh with such Needles mentioned in this last described kind of Suture, as the following figure shewes.

The figure of the future fit for cloven or Hare lips, as also the delineation of the Needle about whose ends the thred is wound over and under, to and again.
To this purpose I will recite a history, to the end, that if any such thing happen to come to your hands, you may doe the like. A certaine Gafcoine in the battell at Saint Lawrence had his upper jaw cut overthwart even to his mouth, to the great disfiguring of his face. The wound had many wormses in it, and flanke exceedingly, because he could get no chirurgeon untill three dayes after he was hurt. Wherefore I washed it with a decoction of wormwood, Aloes and a little {Egyptium wormes, both to kill the wormes, and to letch away all the putride matter, I disfigured the rumor with a dissolving fomentation and cataplasm, I joined together the lippes of the wound with the last described future. But I applied this following medicine to the whole part.

RTerech, set, venenum, gumm elemi, {3} j. paluer in boh armen. fan. drac. Mssticetti myr- rha, aloes et. 56. incorporamentum simul. fist medicamentum. The wound was agglutinated within a few dayes, but that there remained a certaine little whole at the joyning of the lower jaw with the upper, wherein you could scarce put the head of a pinne, which, though it be of such a sort and thaine moysture flowed, especially when he either eate or spake, which I have also observed in many others. But for staying of this watriful humidity I dropped Aqua fortis into the bottom of the cesse, and divers times put therein a little of the powder of burnt vitriole. Thus by Gods grace he recovered and became whole.

He Nose many ways suffereth solution of continuities by a wound, fracture and contusion, and it is sometimes bettered and broken on the upper part; when it happens, you shall restore the depreft bones to their native fear and figure, with the end of a patula or ficke wrapper about with tow, cotton or a linen ragge. Then with pledgers dipped in an astringent medicine composed ex alhume ow, musficini, belo aren., factione drac. & Alumine usto, and applied to the side of the nose, bee shall labour to strengthen the restored bones, and then binde them with a convenient ligature, which may not preffe them too much, lest the nose should become flat, as it happens to many through the unskilfulneffe of Chirurgions. Then must you put little pipes into the nose-thrills, and these not exactly round, but somewhat flat and deep, tyed to the night-cappe on each side with a thred, lest they should fall out. By the helpe of these pipes the bothes of the nose will be kept in their place, and there will be passage forth for the matter, and for inspiratio and expiratio. But if all the nose, or some portion thereof shall bee wholly cut off, wee must not hope to restore it.

But if the nose bee so cut, that as yet it adheres to much of the adjacent flesh, from whence it may receive life and nourishment, then sew it up. For the lower part of the nose is may be haken, depreft and wresst aside, seeing it is grilletly, but it cannot be broken as the other which is a bony nature.
He tongue may bee so wounded, that either it may bee wholly cut off and deprived of some portion of the substance, or onely hit long wayes or awaite. The loffe of the substance cannot bee repaired, because every part separted and pluckt from the living body, from whence it had life, spirit and blood, presently dyes. For as the Philosophers say, *A Providence ad habitum monas regrescis.* But when it is cut or hit long wayes or sidewayes, it is easily restored by future, if so bee that the cloven part yet adhere to the living body from whence it may draw both matter and forme of life. Therefore a careful Cervant shall straitly hold with a fofe and cleane linen clothe the body of the tongue, leaft it should flip away by reaon of its slipperyneffe, whilst the Chirurgion anchoit above and below, when he thinkes he hath done his work sufficiently, let him cut off the thread as neere to the knot as he can, leaft being left too long it might bee tangled with the teeth as be care, and fo cause a hurtfull lactation or rending of the fowed parts. In the meane time let the patient eate barley cresses, almond milkes, Gelleyes, bullifhes and breathes, and the yolkes of egges; and let him often hold in his mouth Sugar of Roses and fyruppe of Quinces; for such things besides their nourifhing faculy, performe the part of an agglutinating and detergent medicine.

I have learned these things I have here set downe, neither from my Masters whom I have heard with attention, nor by reading of booke, but they have beeen such as I have tried with happy successe in many; as in the fonne of Monfieur de Marigny, president of the Inquisition, in John Piet a Carpenter dwelling in the suburbs of Saint German.

But most apparently in a child of three yeares old, the fonne of the great Lawyer Monfier Conde, who fell with his chin upon a stone, and fo cut off a large pece of the end of his tongue, which chanced to be betwene his teeth, it hung but at a very small fiber of flesh, fo that I had very little or no hope to agglutinate and unite it, which thing almost made me to plucke it quite away, yet I changed that determination by considering the loffe of the most noble action of speaking, which would chuse up enus, and weighing the providence of nature often working wonders and such things as exceed the expectation of the phisition in curing diseases.

I also thought thus with my felfe, the flesh of the tongue is fofe, loofe, fungous and fpongious, neither is it altogether obvious to the exteriour injuries of the ayre, wherefore after that I had once or twice thrui through the needle and thred upwards and downwards, and for the reft ordered the child to be used and dired after the
Of the Wounds of the Eares.

Chap. XXVII.

Of the Wounds of the Eares.

How many ways the suici
ty of eares may be violates.

How to save a wounded Ear.

The different cas of wounds of the necke and throat.

The palpable following.

Signes that the gullet is wounded.

The wounds of the jugular veins and slipy Arteries are deadly by accident.

By hurting the recurrent Nerve the voyce is hurt.

The discours of the Auctor, Balsame.

He cares are sometimes wholly cut off, sometimes but in part, otherwhiles they are onely flat, so that the rent portion as yet adheiring to the rent, is joined with it in communion of life. In this last case, it is fit to use a future; but yet so that you touch not the gristle with your needle; for thence there would be in danger of a gangrene, which happens to many by foolish cutting; therefore you shall take up and comprehend with your needle only the skin, and that little flesh which encompasseth the gristle.

You shall performe the rest of the cure with pledgets and ligatures artificially fitted, and shall resist inflammation and other symptomes with fit medicines. But you must take special care that no superfluous flesh grow in the auditory passage, which may hinder the hearing, wherefore you shall keepe that passage free by stopping it with a piece of sponage. But you shall procure agglutination and consolidation of the gristy part (and therefore next to a hone most dry) with dry medicines. But those who have their ears quite cut off, can doe nothing but hide the deformity of their misshap with a cap, stuffed with Cotton on that side.

Chap. XXVIII.

Of the Wounds of the Throat.

He Wounds of the necke and throat are somewhiles simple, as those which only use the continuance of the muscles, other whiles compound, such as those which have conjointed with them a fracture of the bones, as of the Vertebra, or hurt of the internal and external jugular Veines, or slipy Arteries, sometimes the Trachea Arteria, or Wazson, and the oesophagus or gullet are wounded, sometimes wholly cut off, whence present death ensues. Wherefore let not the Chirurgeon meddle with such wounds, unless he first forret the danger of death, or the losse of some motion to those that are present. For it often happens that some notable nerve or tendon is violated by a wound in the necke, whence a palpable ensues, and that absolutely incurable, if the wound shall penetrate to the spinal marrow, also hurt the heart. Wounds of the gullet and Wazson are difficultly cured because they are in perpetual motion, and chiefly of the latter by reason it is gristy and without blood. The wounds of the gullet are knowne, by spitting of blood, by the breaking forth of meate and drinke by the wound; but if the gullet be quite cut off, the patient cannot swallow at all. For the cut parts are both contracted in themselves, the one upwards, and the other downwards. But we know the wound is hurt, by casting up blood at the mouth with a continuall cough, and by the coming forth of the breath or winde by the Wound. The Wounds of the jugular Veines and slipy Arteries, if they be great, are usuallly deadly, because they cannot be straitly bound up; for you cannot binde the throat hard without danger of choking or strangling the patient. But for defect of a slipy ligature in this case the fluxe of blood proves deadly. If the recurrent Nerve of either side be cut, it makes the voyce hoarse if cut on both sides, it takes away the use of speach, by hurting these instruments which impart motion to the muscles of the Zatron. For the cure if the wound be small, & not associated with the hurt of any notable vesse, nor of the Wazson and gullet, it is speedily and easily cured; and if there shall be neede you shall use a future, then you shall put therein a sufficient quantity of Veneice Turpentine mixed with boile-Armeniace, or else some of my Balsame of which this is the receipt. R. Terebenth, venena B. long. elemi 2illi, olei hyperici um 2illi, boile armect, & frag. draciitis aqua vita 3illi, aqua vitæ 3illi. I have done wonders with this Balsame in the agglutination of simple wounds, where no strange body hath beene.
The faculty of
Dissolution,
Gratia Dei, et Emp. de lana.

But if the jugular veins and sleepie Arteries bee cut, let the bleeding bee stayed, as we have wretched in a chapter, treating thereof. When the Wazon or Gullet are wounded, the Chirurgion shall for them up as acutely as he can; and the patient shall not endeavour to swallow any hard things, but hee content to bee fed with gel-lyes and brothes. When a gargatifme is needfull, this following is very good.

R. hordei M.] florum rofar, p. j. passi. mond. jujubarum an. 3i. glycerie a 3j. bull. A gargatifme

With which being warme the Patient shall may feren his mouth, and throate, for it will mitigate the harshneffe of the part, alwage paine, cleanse and agglutinate, and make him breathe more freely. But that the Chirurgion may not despair of, or leave any thing unattempted in such like wounds, I have thought good to demonstrate by some examples, how wonderfull the workes of nature are, if they be assisted by Art.

A certaine fervant of Monfieur de Champagne, a gentleman of Anon, was wounded in the throat with a sword, whereby one of the jugular veins was cut together with his Wazon. Hee bled much and could not speake, and these symptoms remained until such time as the wound was fowed up, and covered with medicines. But if the medicines at any time were more liquid, hee as it were fell them by the wound and spaces betweene theitches, and presently put forth at his mouth that which he had sucked or drawne in: Wherefore more exactly considering with my felfe, the deepneffe of the Wound, the spermaticke and therefore dry and blood-lefe nature unapt to agglutination, of the affected part, but chiefly of the Wazon & jugular veins as also for that the rough Arterys obnoxious to these motions which the gullet performs in swallowing, by reason of the inner coate, which is continued to the coate of the gullet, by which means these parts mutually serve each other with a reciprocall motion, even as the ropes which runne to the wheel of a pulley; furthermore weighing that the Artery was necessary for the breathing, and tempering the heart of the heart, as the jugular veins served for the nourishment of the upper parts; and lastly weighing with my felfe the great quantity of blood he had loft, which is as it were the treasure of nature, I told those which were present, that death was nere and certainly at hand. And yet beyond expectation, rather by divine favour than our Art, he recovered his health.

Equally admirable is this history following. Two Englishmen walked out of the City of Paris for their recreation to the wood of Fontaine; but one of them, lying in wait to rob the other of his money and a suffie chain of gold which he wore, set upon him at unawares, cut his throate and robbed him, and so left him amongst the Vines which were in the way, supposing he had in the way, supposing he had in the way, supposing he had in the way. The murderer came backe to the city, the other halfe dead, crawled with much ado to a certaine Peasants house, and being dressed with such medicines as were present and at hand, he was brought to the City, and by his acquaintance committed to my cure to be cured.

In the first, as diligently as I could, I fowed up the Wazon which was cut quite a funder, and put the lips of the wound as close together as I could, I could not get hold of the gullet because it was fallen downe into the stomatke, then I bound up the wound with medicines, pledgets and fit ligatures. After he was thus dreft he begun to speake, and tell the name of the villain the author of this fact, so that hee was taken and fastened to the wheel, and having his limbes broken loft his wretched life, for the life of the innocent wounded man who dyed the fourth day after he was hurt.

The like hurt befell a certaine German; who laye at the house of one Paris in the
the streete of Nutshie being franticke in the night cut his throate with a sword; I being called in the morning by his friends who went to see him, thrust him just after the same manner as I descried the Englishman. Wherefore he presently recovering his speech, which before could not utter one syllable, fretted from sufficient of the crime and prison the servant, who lying in the same chamber with him, was upon sufficient committed to prison, and contesting the things as it was done, lived four days after the wound, being nourished with breathes put into his fundament like cyphers, and with the grateful vapors of comfortable things, as bread newly drawne out of the Oven and baked in strong wine. Having thus by the Art of Chirurgery made the dumb speake for the space of four days.

Of the Wounds of the Cheef.

One wounds of the Cheef are on the fore side, some behind, some penetrate more deepe, others enter not into the capacity thereof, other some piece even to the parts contained therein, as the Mediastinum, Lungs, heart, midriffe, hollow veins, and ascendent artery; Other some pale quite through the body, whereby it happens that some are deadly, some not.

You shall thus know that the wound penetrates into the capacity of the Cheef, if that when the patients mouth and nose be shut, the breath, or wind breaks through the wound with noise, so that it may dissipate, or blow out a lighted candle being held near it. If the patient can neither draw, nor put forth his breath, which also is a sign that there is some blood fallen downe upon the Diaphragma.

By these signes you may know that the heart is wounded: If a great quantity of blood gush out, if a trembling possess all the members of the body, if the pulse be little and faint, if the colour become pale, if a cold swett and frequent spewing assayle him, and the extreme parts become cold, then death's at hand.

Yet when I was at Turin I saw a certain Gentleman who fighting a Duell with another, received a wound under his left brest which pierced into the substance of his heart, yet for all that he strucke some blows afterwards, and followed his flying Formee, some two hundred paces until hee fell downe dead upon the ground; having opened his body, I found a wound in the substance of the heart, so large as would contain one finger; there was onely much blood pouer forth upon the midriffe.

These are the signes that the Lungs are wounded, for the blood cometh spongic or frothy out of the wounds, the patient is troubled with a cough, hee is also troubled with a great difficulty of breathing and a paine in his side, which hee formerly had not, he lyes most at ease when hee lyes upon the wound, and sometimes it comes so to passe, that lying so hee speaks more freely and easily, but turned on the contrary side, he presently cannot speake.

When the Diaphragma or midriffe is wounded, the party affected is troubled with a weight or heaviness in that place, hee is taken with a Delirium, or raving by reason of the sympathy of the Nerves of the sixt conjugation which are spread over the midriffe, difficulty of breathing, a cough and sharpe paine trouble the patient, the Guts are drawne upwards, so that it sometimes happens by the vehemency of breathing, that the stomacke and guts are drawne through the wound into the capacity of the Cheef; which thing I observd in two.

The one of these was a Maio, who was thrull though the midriffe, where it is Nervous, and dyed the third day following. I opening his lower belly, and not finding his stomacke, thought it a monstrous thing; but at length searching diligently, I found it was drawn into the Cheef, though the wound which was scarce an
Wounds of each Part.

L 18. 10.

Wounds of each Part.

L 18. 10.

Wounds of each Part.

L 18. 10.

Wounds of each Part.
A History. While I was at Turin, Chirurgion to the Marshall of France his General, I had in cure a foulder of Paris, whose name was L'esque, he served under captain Remont.

He had three wounds, but one more grievous than the rest, went under the right breast, somewhat deep into the capacity of the Chest, whence much blood was poured forth upon the midribs, which caused such difficulty of breathing, that it even took away the liberty of his speech. Besides, though this occasion he had a vehement fever, coughed up blood, and a sharp pain on the wound side. The Chirurgion which first dressed him had so bound up the wound with a strait and thicke future, that nothing could flow out thereat. But I being called the day after, and weighing the present symptoms which threatened speedy death, judged that the flowing of the wound must be loosed; which being done, there instantly appeared a clot of blood at the orifice thereof, which made me to cause the patient to yxe half out of his bed, with his head downwards, and to fly his hands on a settle which was lower than the bed, and keeping himself in this posture, to flush his mouth and nose that his lungs should swell, the midribs be stretched forth, and the intercostall muscles and those of the abdomen should be comprized, that the blood poured into the chest might be evacuated by the wound; but also that this excretion might succeede more happily, I thrust my finger somewhat deep into the wound, that so I might open the orifice thereof being flopped up with the congealed blood, and certainly I drew out some heavens or eight ounces of putrified and thinking blood by this means. When he was laid in his bed, I caused frequent injections to be made into the wound of a decoction of Barly with honey of Roses and red Sugar, which being injected I wished him to turn first on one, and then on the other side, and then again to yxe out of his bed as before, for thus he evacuated small, but very many clots of blood, together with the liquor lately injected; which being done, the symptoms were mitigated, and left him by little and little. The next day I made another more detergent injection, adding to wormwood, centaury, and Aloe; but such a bitter mixture did rise up to his mouth together with a desire to cast, that he could not longer endure it. Then it came into my mind that formerly I had observed the like effect of the like remedy in the Hospital of Paris, in one who had a fistulous ulcer in his chest. Therefore when I had considered with myself that such bitter things may easily passe into the lungs, and so may from thence rise into the Weazon and mouth, I determined that thence forwards I would never use such bitter things to my patients, for the use of them is much more troublesome than any way good and advantageous. But at the length this patient by this means recovered his health beyond my expectation.

But on the contrary, I was called on a time to a certain Germaine gentleman who was runne with a sword into the capacity of his chest, the neighbouring Chirurgion had put a great tre into the wound at the first dressing, which I made to bee taken forth, for that I certainly understood there was no blood pour’d forth into the capacity of the chest because the patient had no fever, no weight upon the diaphragm, nor spitted forth any blood. Wherefore I cured him in few days by only one injection in some of my balsame and laying a plaster of Dioscelibon upon the wound.

The like cure I have happily performed in many others. To conclude, this I dare boldly affirm, that wounds of the chest by the too long use of rents degenerate into Fistula’s.

Wherefore if you at any time shall undertake the cure of wounds which penetrate into the capacity of the chest, you shall not presently that them up at the first dressing, but keep them open for two or three days: but when you still find that the patient is troubled with no or very little pain, and that the midribs is press’d down with no weight, and that he breathes freely, then let the tent be taken forth, and the wound healed up as speedily as you can by covering it oneely with lint dipped in some balsame which hath a glutinative faculty, and laid somewhat broader than the wound; never apply liniments to wounds of this kind, left the patient by breathing draw them into the capacity of the chest. Wherefore also you must have
a care that the same put into those kinds of wounds may be fastened to the Pledgets, and also have some what a large head, left they should be drawn as we say into the capacity of the Cheft, for if they fall in, they will cause putrefaction and death.

Let Emplast, Dosecilithe or some such like be applied to the wound. But if, on the contrary, you know by proper, and certaine signes, that there is much blood fallen into the spaces of the Cheft, then let the orifice of the wound be kept open with larger tents, until all the Santei or bloody matter, wherein the blood hath degenerated, shall be exhausted. But if it happen at any time, as affuredly it sometimes doth, that notwithstanding the Art and care of the Phyfition, the wound degenerates into a Fisula, then the former evil is become much worse. For Fisula's of the Cheft, are hard cured at any time, and that for divers causes. The first is, for that the muscles of the Cheft are in perpetuall motion; another is, because they on the contrary inside are covered only with the membrane investing the ribs, which is without blood. The third is, for that the wound hath no stay, by means whereof it may be comprized, fowed, and bound, whereby the lips being join'd together, the wound may at length be repleniished with flesh, and cicatrized.

But the reason why wounds of the Cheft doe every day heape up and pour forth so great a quantity of matter, seemes to be their vicinity to the heart, which being the fountain of blood, there is a perpetuall effuxion thereof from thence to the part affected. For this is nature's care in preserving the affected parts, that continually and abundantly without measure or means it sends all its supplies, that is, blood and spirits, to the syde. Ad hereto, that the affected parts by paine, heat and continual motion of the Lungs and midriff draw and allure much blood to themselves. Such like blood defiled by the malignity and filth of the wound, is speedily corrupted, whence it is that from the perpetuall effuxion of blood, there is a continual effuxion of matter or fish, which at the last brings a man to a consumption, because the ulcerated part, like a ravenous wolf, consumes more blood by the paine, heat and motion than can be inserted thereto by the heart. Yet if there be any hope to cure and heale the Fisula, it shall bee performed, (after the use of diet, phlebotomie, and according to the precept of the Phyfition) by a vulnerary potion, which you shall finde described when we treat of the Cures or rotteneffe of the bones. Wherefore you shall make frequent injections therewith into the Fisula, adding and mixing with it syropus de rota stercum and mel rota stercum. Neither doe I, if the purgesation bee great, fear to mixe therewith Equisicium. But you must have a care to remember and observe the quantity of the injected liquor, that you may know whether it all come forth againe after it hath performed its detergent office. For if any thereof remaine behind in the corners and crooked passages, it hurts the part, as corrupted with the contagion thereof.

The forme of a Syringe to make injection, when a great quantity of liquor is to be injected into any part.

After the injected liquor is come forth, a pipe of gold, silver or lead, shall be put into the fistulous ulcer, and it must have many holes in it, that so the fish may passe forth at them, it must be fast tyed with strings, that it may not fall into the capacity of the Cheft.

A great sponge steeped in aqua viva and wrung forth againe, shall be layd hot to the end or orifice thereof, both to hinder the entrance of the ayre into the Fistulous ulcer, as also to draw forth the fish thereof by its gentle heat, the which thing the patient
Of the Greene and Bloody

Patient shall much further, if often times both day and night, he hold his breath, stopping his mouth and nose, and lying upon the diseased side, that so the Sante may be more forcibly evacuated; neither must we leave putting in the pipe, before that this fistulous ulcer shall be almost dry, that is, whole, as when it yields little, or no matter at all; then it must be cicatrized. But if the orifice of this fistulous ulcer being in the upper part hinder the healing thereof, then by a chirurgical Section a passage shall be made in the bottom, as we said before in an Empyema.

The delineation of the pipes with their strings and sponges.

The reader must note that the pipes which are fit for this use, must not have so many holes as those here express, but only two or three on their ends: for the sall growing and getting into the rest, make them that they cannot be plucked forth without much pain.

A wound made in the Lungs admits cure, unless it bee very large, if it bee without inflammation; if it bee on the skirts of the Lungs, and not on their upper parts; if the patient continue himselfe from coughing much, and contentious speaking, and great breathing; for the wound is enlarged by coughing, and thence also arises inflammation, the Pus and Sante whereof, whilst the lungs against endeavour to expell by coughing, by which means they are only able to expel that which is hurtfull and troublesome to them, the ulcer is dilated, the inflammation augmented, the Patient wastes away, and the diseas becomes incurable.

There have beene many Elegims described by Physitians for to cleane the ulcer: which when the patient uteth, he shall lie on his backe, to keep them long in his mouth, to relaxe the muscles of the Larynx, for thus the medicine will fall by little and little alonge the coats of the Weazon, for it should fall downe in great quantity, it would be in danger to cause coughing. Cowes, Altes, or Goates milke with a little honey, leaft they should corrupt in the stomacke, are very fit remedies for this purpose: but womans milke exceeds the rest.

But Sugar of Roses is to be preferred before all other medicines, in the opinion of Avicen, for that it hath a detergent, and also an adstringe and strengthening facultie, than which nothing is more to bee desired in curing of ulcers. When you shall thinke it time to agglutinate the clesed ulcer, you must command the patient to use emplastick, aultere, and adstringent medicines, such as are Terra ferrilata, botus armenius, hyposiis, plantaine, knot-graft, Swamet, ascias and the like, which the patient shall use in his brodious and Elegyma’s, mixing therewith honey of roes, which serving for a vehicle to the rest, may carry away the impacted sall which hindereth agglutinacion. But seeing an hecchicke feaver easilly follows upon these kindes of wounds, and also upon the affeA's of the Cheef and Lungs, it will not be amifs to fet downe somewhat concerning the cure thereof, that the Chirurgien may know to administrer some helpe to his patient, whilte a Physitioner is out for, to overcome this diseas with more powerfull and certaine remedies.

CHAP.
Wounds of each Part.

Chapter XXXII;

Of the differences, causes, signs and cure of an Hecticke feaver.

Hecticke feaver is so called, either for that it is flubborne and hard to cure and looke, as things which have contradicted a habite; or else for that it feazes upon the solide parts of our bodies called by the Greckes Ηχείς, both which the Latine word Habitus doth signify.

There are three kindes, or rather degrees of this feaver. The first is when the hecticke heate consumes the humidity of the solide parts. The second is, when it feeds upon the fleshy subsance. The third and un cureable is, when it destroys the solide parts themselves. For thus the flame of a lamp firft waftes the oyle, then the proper diorture of the weeke. Which being done there is no hope of lighting it againe what store of oyle soever you poure upon it. This feaver very feldome breeds of its felfe, but commonly follows after some other.

Wherefore the caufes of a hecticke feaver are, sharpe and burning feavers not well cured, especially if their heate were not reprefled with cooling epichemes applyed to the heart and Hypochondria. If cold water was not fiftily drinke. It may alfo succede a Diary feaver which hath bin caufed and begun by fome long, great and vehement grief or anger, or fome too violent lat-out, which any of a fliender and dry body hath performed in the hot funne, it is alfo oftimes caufed by an ulcer or inflammation of the Lungs, an empyema of the Cheff, by any great and long continuing Phlegmon of the liver, stomacke, meletemery, wome, kidneys, Bladder, of the guts, Jejunum and Colon, and alfo of the other Guts, of the Phlegmon succeed fome long Diarrhoea, Listeria or bloody flux, whence a confumption of the whole body, and alft a hecticke feaver, the heate becomning more acride, the moityrue of the body being confumed.

This kinde of feaver as it is moft casely to bee knowne, fo is it moft difficult to cure; the pule in this feaver is hard, by reafon of the dryneffe of the Artery which is a folid part, and it is weake by reafon of the debility of the vitall faculty, the fubftance of the heart being affauked. But it is little and frequent becaufe of the di feperm and heate of the heart, which for that it cannot by reafon of its wcakeneffe caufeagreat pulfetocooleitsfdfe, it labours by the oftenneffe to fupply that de fed.

But for the pule, it is a proper figne of this feaver, that one or two hours after meate the pule feelles ftronger than usuall; and then alfo there is a more acride heate over all the patients body. The heate of this flame lafts untill the nourifhment be distributed over all the patients body; in which time the dyrmfly of the heart in fome fort tempered and recreated by the appulfe of moity nourifhment, the heate increaseth no otherwife than time which a little before feemed cold to the touch, but sprinkled and moyfined with water grows fo hot, as it fmoakes and boyles up. At other times there is a perpetuall equality of heate and pule in fmalIneflc, faintynefsc, obscurely, frequency, and hardneffe, without any exacerbation, fo that the patient cannot think himselfe to have a feaver, yea hee cannot complaine of any thing, hee feels no paine, which is another proper figne of an hecticke feaver.

The caufe that the heate doth not fhow its felfe is, it doth not poffife the furface of the body, that is, the spirits and humors, but lies as buried in the earthy groffenelle of the solide parts. Yet if you hold your hand fomewhat long, you hall at laft perceive the heart more acride and biting, the way being opened thereto by the fkinne rarified by the gentle touch of the warme and temperate hand. Wherefore if at any time in these kinde of feavers the Patient feele any paine, and perceive himfelfe troubled with an inequality and excife of heate, it is a figne that the hecticke feaver is not fimple, but conjointed with a putride feaver, which caufeth fuch inequality, as the heate doth more or leffe feaze upon matter subject to putrefation; for a hecticke feaver of its felfe is void of all equality, unleffe it proceede from fome externall caufe,
OftheGreeneandBloody

Lib: 10.

as from meate; Certainly if an Hippocratique face may be found in any disease, it may in this, by reason of the colliquation, or wafting away the triple substance.

In the cure of this disease, you must diligently observe with what affe(cts it is entangled, and whence it was caused. Wherefore first you must know whether this fever be a disease or else a symptom. For if it be symptomatically it cannot be cured, as long as the disease the cause thereof, remains uncured; as if an ulcer of the guts occasioned by a bloody flux shall have caused it, or else a fluxulour ulcer in the Cheet caused by some wound received on that part, it will never admit of cure, unlefe first the fluxulour or dyserterick ulcer shall be cured, because the disease feeds the symptoms, as the cause the effect. But if it be a simple and essentiall healtick feaver, for that it hath its influence confluting in an hot and dry distemper, which is not fixed in the humors, but in the solid parts, all the counsel of the Phyfition must be to reunite the body, but not to purge it for only the humors require purgation, and not the defaults of the solid parts. Therefore the solid parts must be refrigerated and humedled, which we may doe by medicines taken inwardly and applied outwardly.

The things which may with good successe be taken inwardly into the body for this purpose, are medicinall nourishments. For hence we shall finde more certaine and maufleff good, than from altering medicines, that is, wholly refrigerating and humedling without any manner of nourishment.

For by reason of that portion fit for nutriment which is therewith mixed they are drawn and carried more powerfully to the parts, and also converted into their substance; whereby it comes to passe that they doe not hymed and cool the lightly and superficially, like the medicines which have only power to alter and change the body, but they carry their qualities more throughly even into the innermost substance.

Of these things some are herbes, as violets, purslane, bugloe, endive, chicke meat, or water lentill, mallowes, especially when the belly shall be bound. Some are fruits, as gourds, cowcumber, apples, prunes, raisins, sweete almonds, and trellis or new pine-apple kernels. In the number of feedes are the foure greater and lefte cold feedes, and these new, for their native humidity, the feedes of poppies, barberries, quinces. The fower of bugloe, violets, water lilies, are also convenient of all these things let broth be made with a chicken, to bee taken in the morning for eight or nine daies, after the first concoction.

For meates; in the beginning of the disease, when the faculties are not too much debilitated, hee shall use such as nourifh much and long, though of hard digestion; such as the extreme parts of beasts, as the feete of Calves, Hogsse feete not salted, the flie of a Tortois, which hath lived so long in a garden, as may suffice to digest the excrementitious humidity, the flie of white Snails, and such as have bene gathered in a vineyard, of frogs, river Crabs, Eeles taken in ecleere waters and, welcooke, hard egges eaten with the juice of Sorrell with spices, Whetings and fteckfish. For al fuch things because they have a tough and glutinous juic, are easie put & glutinate to the parts of our body, neither are they so easie disparted by the feverist heat. But when the patient languishe of a long heick, he must feede upon meats of easy digestion, and these boyled rather than roasted; for boyled meats humect more, and roasted more easie tayne into choler. Wherefore hee may use to eate Veale, Kid, Capon, Pullet, boyled with refrigerating and humecting hearesse, hee may also use Early creames, Almond milkes, as also bread crummed and moyerfined with rofe water and boyled in a deccion of the foure cold feedes with suger of refes; for such a Paanda cooleth the liver, and the habite of the whole body, and nourifheth withall.

The Testicles, wings, and livers of young cockes, as also figges and raisons. But if the patient at length begin to loathe and grow weary of boyled meates, then let him use roaft, but so that he cut away the burnt and dryed part thereof, and feed onely on the inner part thereof, and that moyfined in rofe water, the juice of Citrons, Oranges or Pomegranats. Let him abstinence from salt and dry fisheis, and chue fuch fisheis as live in ftony waters, for the exercice they are forc'd to undergoe in fhuming the rookes.
Wounds of each Part.

Now Affairs milk must be used in a be; chicken.

Worms milk more wholesome than Affairs.

L I B 10.

rocks beaten upon by the waves, Affairs milk newly milked and seasoned with a little salt, sugar, honey, or mssonell, that it may not corrupt, nor grow sour in the stomach, or worms milk from the dung by the patient, to the quantity of half a pint, is much commended; verily worms milk is the more wholesome, as that which is more sweet and familiar to our substance, if so be that the nurse be of a good temper and habite of body. For so it is very good against the gnawings of the stomach, and ulcers of the Lungs, from whence a Consumption often proceeds. Let your milk Affairs be fed with barley, oats, oak leaves; but if the patient chance to be troubled with the flux of the belly, you shall make the milk somewhat astringent, by gently boiling it, and quenching therein pebble stones heated red hot. But for that all natures cannot away with Affairs milk, shall abstain from it, as it makes to have acid belchings, difficulty of breathing, a heat and rumbling in the Hypochondria, and pain of the head. Let the patient temper his wine with a little of the waters of Letuce, puslaine and water-lilies, but with much bugloffe water, both for that it may stir up very much, as also for that it hath a special power to recreate the heart, whose solid substance in this kind is greatly afflicted. And thus much of things to be taken inwardly.

These things which are to be outwardly applied, are inunctions, baths, emplast, plasters. Inunctions are divers, according to the various indication of the parts where to they are applied. For salve annoints all the spine with cooling & moderate astringent things, as which may suffice to strengthen the parts, and hinder their wasting, and not let the transpiration, for if it should be lessed, the heat would become more acrid, by suppreffing the vapours. Oyle of roses, water lilies, Quinces, the mucilages of Gumme tragacanth and arabicke extracted in water of nightshade, with some small quantity of camphure, and a little waxe if nede require; but on the contrary, the parts of the breast must be annoynetd with refrigerating and relaxing things, by refrigerating I mean things which moderately cool, for cold is hurtfull to the breast. But astringent things would hinder the motion of the muscles of the chest, and cause a difficulty of breathing. Such inunctions may be made of oyle of Violets, willowces, of the feeds of lettuce, poppyces, water-lilies, mixing with them the oyle of sweete almonds to temper the astringence which they may have by their coldnese. But you must have great care that the Apothecarie for cov sentenced in feed of these oiles newly made give you not old, rancide and salted oiles, for so in feed of refrigerating, you shall heare the parts, for wine, honey and oyle acquire more heat by age; in defect of convenient oyles, we may use butter well walnut in violet and nightshade water. The use of such inunctions, is to cool, humect and comfort the parts where to they are used; they must be used evening and morning, chiefly after a bath.

Now for Bathes, we prescribe them either onely to moisten, and then plaine warm water wherein the flowers of Violets and water lilies, willow leaves and barley have been boyled, will be sufficient, or else not onely to moisten, but also to acquire them a softer and fuller habite, and then you may add to your bath the decoction of a sheeps head and Gather, with some butter. But the patient shall not enter into the bath fasting, but after the first concoction of the stomach, that so the nourishment may be drawne by the warmnese of the bath into the whole habite of the body, for otherwise he which is sick of a consumption and shall enter the bath with his stomacque empty, shall suffer a greater dissipation of the triple substance, by the heat of the bath, than his strength is well able to endure. Wherefore it is fit thus to prepare the body, before you put it into the bath. The day before in the morning let him take an emollient clyster, to evacuate the excrements baked in the guts by the bockickes, and then let him have his dinner some solid meats about nine of the clocke, and let him about foure of the clocke eat somewhat sparingly, meats of colder digestion to his supper. A little after midnight let him sup of some chicken broth or barley creame, or else two reare egges tempered with some rote water and liuger of roses in feed of salt. Some 4 or 5 hours after, let him enter into the bath, these things which I have set downe, being observed. When he comes out of the bath, let him be dried and gently rubbed, with soft linen clothes, and annoyned as I formerly.

The differences of Bathes.

Why thet nas needs much not enter the Bath fasting.

How to prepare the body for the Bath.
Of the Greene and Bloody

Things

strengthening
the venereal

Epistemes.

Epidemic.


unfit to the stomach, so that hee cannot sit in the bath without fear of overwarming and such symptoms, his stomach must be strengthened with oyle of Quinces, Wormwood and Maltish, or else with a crust of bread toasted, and steeped in muskamedine, and fireewed over with the powders of Roses, Sanders, and so laid to the stomach, or behind near to the thirteenth vertebra of the back, under which place, Anatomic teaches, that the mouth of the stomach lies. Epithemes shall be applied to the liver and heart, to temper the too acride, heat of these parts, and correct the immoderate dryness by their moderate humidity.

Now they shall be made of refrigerating and humecting things, but chiefly humecting, for too great coldness would hinder the penetration of the humidity into the part lying within. The waters of Buglofe, and Violts, of each a quarter, with a little white wine is convenient for this purpose. But that which is made of French barley, the seedes of gourd, pompions, or Cowcumbers of each three dramis in the decoction, and mixed with much tempering with oyle of Violts, or of sweete almonds, is most excellent of all other. Let clothes be dipped and steeped in such epithemes, and laid upon the part, and renewed as oft as they become hot by the heat of the part. And because in hecticke bodies, by reason of the weakenesse of the digestive facultie, many excrements are usually haeped up, and dryed in the guts, it will be convenient, all the time of the diseas to use frequently glisters made of the decoction of cooling and humecting herbes, floweres, and seeds wherein you shall dissolve Caffia with sugar and oyle of Violts, or water-lilys. But because there happen very dangerous fluxes in a confirmed hecticke feaver, which thaw the decay of all the faculties of the body, and walling of the corporall substance, you shall refill them with refrigerating and afitting medicines, and meetes of grofe nourishment, as Rice, and Ciers, and application of astringent and strengthening remedies, and using the decoction of Oates or parched barley for drink. Let the patient be kept quiet and sleeping as much as may be, especially if he be a child.

For this feaver frequently invades children by anger, great and long feare, or the too hot milke of the nurce, overheating in the Sunne, the use of wine and other such like causes, they shall be kept in a hot and moist ayre, have another Nurce, and bee anointed with oyle of Violts; to conclude, you shall apply medicines which are contrary to the morbiticke cause.

Chap. XXXIII.

Of the wounds of the Epigastrium and of the whole lower belly.

He wounds of the lower belly are sometimes before, sometimes behind, some only touch the surface thereof, others enter in, some paffe quite through the body, so that they often leave the weapon therein, some happen without hurting the contained parts, others grievously offend their parts, the liver, spleene, stomach, guts, kidneyes, wombbe, blader, vreten, and great vesells, so that oftentimes a great portion of Kali falls forth. We know the Liver is wounded, when a great quantity of blood comes forth at the wound, when a pricking paine reaches even to the swordlike gristle, to which the Liver adheres. Oftentimes more choler is cast up by vomit, and the patient lies on his belly with more ease, and content.

When the stomach, or any of the small guts are wounded, the meat and drink break out at the wound, the Io or flanks swell and become hard, the hickter troubles the patient, and oftentimes hee casts up more choler, and greaves paine wrings his belly, and hee is taken with cold sweates, and his extreme parts waxe cold.

If any of the greater guts shall bee hurt, the excrements come forth at the wound.
When the Spleene is wounded, there flows out thick and blacke blood, the patient is oppress'd with thirst, and there are also the other signes, which wee said use to accompany the wounded Liver. A difficulty of making water troubles the patient whose reins are wounded, blood is spilt forth with the Vrime, and he hath a paine stretched to his groines and the regions of the Bladder and Testicles.

The Bladder or Vreters being wounded, the flanches are painefull, and there is a Ten- sion of the Enten or shc, blood is made in flood of urine, or else the urine is very bloody, which also divers times comes forth at the wound. When the womb is wounded, the blood breaks forth by the privities, and the Symptomes are like those of the Bladder.

The wounds of the liver are deadly, for this pan is the workie house of the blood, Prognoftics. wherefore neceffarie for life, besides by wounds of the liver the branches of the Gate or Hollow veines are cut, whence entrees a great flux of blood not only inwardly, but also outwardly, and consequentely a difpation of the spirits and strength.

But the blood which is shed inwardly amongst the bowels putrefies and corruptes, whence follows paine, fever, inflammation, and laftly death. Yet Paulus Sigelus Lib. 6. cap. 83. writes, that the lobe of the Liver may be cut away without necessary conuenience of death. Also the wounds of the Ventricle and of the small Guts, but chiefly of the ileum are deadly, for many yeares runne to the ileum or empty Gut, and is of a very nervous and slender substance, and besides it receives the cholericke humour from the bladder of the Gall. So also the wounds of the Spleenes, Kidneys, Vreters, Bladder, Womb and Gall, are commonly deadly, but always ill, for that the actions of such parts are necessary for life; besides, divers of these are without blood and nervous, others of them receive the moist excrements of the whole body, and lie in the innermost part of the body, so that they do not easily admit of medicines. Furthermore, all wounds which penetrate into the capacity of the belly, are judged very dangerous, though they do not touch the contained bowells; for the encompassing and new are cutting in amongst the bowells, greatly hurts them, as never used to the feeling thereof; add thereto the diisation of the spirits which much weakens the strength. Neither can the fish of such wounds be wafted away according to the mind of the Chirurgion, whereby it happens, they divers times runne into Fistula's, as we faid of wounds of the Cheft, and so at length by collection of matter cause death. Yet I have drefted many who by God's assistance and favour have recovered of wounds passing quite through their bodies.

I can bring as a witneff the steward of the Porringsall Embaffadour, whom I knew, who cured at Metham of a wound made with a sword passing through his body, that a great quantity of excrements came forth of the wounded Guts, as he was a drefting, yet he recovered.

Not long agoe Giles le Maistre a Gentleman of Paris was runne quite through the body with a Rapier, so that he voided much blood at his mouth and fundament divers dayes together, whereby you know the Guts were wounded, and yet he was healed in twenty dayes. In like fort the wounds of the greater vesseles are mortal, by reason of the great effusion of blood and spirits which entyes therupon,

**Chap. XXXIII.**

**The cure of wounds of the lower belly.**

He first cogitation in curing of these wounds ought to be whether they pierce into the capacicie of the Belly; for those which passe no further than to the Peritoneum shall be cured like simple wounds which onely require union. But those which enter into the capacity must be cured after another manner. For oft times the Keller Guts, or both fall forth at them.

A gut which is wounded must be fow'd up with such a seme as Furriens or Glo- vers use, as we formerly told you; and then you must put upon it a powder made of M m

**The cure of a wounded Gut.**
Maltich, Myrthe, Aloes and Bole. Being sowed up, it must not be put up bodily
jointly together and at once into its place, but by little and little, the Patient lying on
the side opposite to the wound. As for example, the right side of the Guts being
wounded and falling out by the wound, the Patient shall lie on his left side, for the
more easy restoring of the fallen down Guts, and on the contrary. If the lower part
of the Guts being wounded flide through the wound, then the Patient shall lie with
his head low down, and his buttocks raised up by putting a pillow under them; if
the upper part be hurt, then must he lie quite contrary, that the Guts falling down-
wards by such a fire, may give way to the which are falling out through the wound.
But often in this case, the Guts having taken cold by the encompassing air, swell up &
are diffend and with wind, the which you must dispute before you put them in their
place, with a fomentation of the decoction of camomile, melilote, aniseeds and fennel
applied with a sponge, or contained in a bladder; or else with chickens, or wheeps
cut alive in the midst and laid upon the swelling; for thus doe they not only difcute
the flatulency, but also comfort the afflicted part. But if the inflacion cannot thus be
discuted, the wound shall be dilated, that so the Guts may return the more freely to
their place.

If the Kallis fall out, it must be speedily restored to its place, for it is very sub-
ject to putrify; for the fat, whereof for the most part it consists, being expos'd to the
true, if the Kallis shall fall out, it must be speedily restored to its place, for it is very sub-
air, easilie looses its native heate, which is small and weake, whence a mortification
The cure of Muscles. Yct I will say this by the way, that wounds of the fat, how deep soever they
are distended with wind, the which you must dispute before you put them into their
place. As for example, the right side of the Guts being wounded and falling out by the
wound, then the Patient shall lie with his left side, for the lower part be hurt, then
must he lie quite contrary, that the Guts falling downwards by such a fire, may give way to the
which are falling out through the wound. But often in this case, the Guts having taken
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chickens, or wheeps cut alive in the midst and laid upon the swelling; for thus doe they not only
discute the flatulency, but also comfort the afflicted part. But if the inflacion cannot thus be
discussed, the wound shall be dilated, that so the Guts may return the more freely to
their place.

lib. 10.
Chap. XXXV.

Of the wounds of the Groines, Testicles, and Thighs.

When the Groines and neighbouring parts are wounded, we must first consider whether they pierce to within; and if they do penetrate, to what inward parts the come, whether to the bladder, the womb, or right gue: for these parts are such near neighbours, that oft times they are all wounded with one blow. But for the wounds of the Testicles, and genitall parts, because they are necessary instruments for the preserving the species by generation, or a succession of individualls, and to keep all things quiet at home, therefore the Chirurgion ought to be very diligent and careful for their preservation. Wherefore if it should chance at any time to be wounded, they shall be dressed as we have formerly delivered, the medicines being varied according to the state of the wound, and the appearing and happening symptomes; for it would be a thing of immense labour to handle all things in particular.

Chap. XXXVI.

Of the Wounds of the Thighes and Legges.

Wounds which have beene received on the inside of the Thighes, have often cau’d sudden death, if they have come to the veins, or the great Artery, or the Nerves the associates of these vessels. But when they are simple, there is nothing which may alter the usuall manner of cure. Yet the patient must be careful to lye in his bed: for the vulgar Italian proverb is true. La mano al petto, la gamba al letto, [that is, the hand on the breast, and the legge on the bed.] But when they penetrate more deeply into the substance of the part, they bring horrid and fearfull symptomes, as an inflammation, an abscess, from whence oft times such aboundance of matter issues forth, that the Patient falls into an Asthophia and consumption. Wherefore such wounds and ulcers require a careful and industrious Chirurgion, who may fitly make incisions necessary for the corrupt parts, and callous of the fistulous ulcer. Some Chirurgions have beene so bold as to sowe together the end of the Tendons of the Ham, and of other joints, when they have beene quite cut asunder. But I durft never attempt it for feare of paine, convulsions and the like horrid symptomes. For the wounds of that large Tendon which is compos’d in the calf of the Legge by the concourse of three muscles, and goes to the heele, I have observed that when it hath beene cut with a sword, that the wounds have beene long and hard to cure; and besides when at the last they have beene healed, as soon as the Patient hath got out of his bed, and endeavoured to goe, they have growne ill and broke open againe. Wherefore in such like wounds let the Patient have a care that he begin not to goe, or too boldly to use his hurt leg before it be perfectly cicatrized and the scarre growne hard. Therefore that the patient may be in more safety, I judge it altogether necessary, that he use to goe with Crutches, for a good while after the wound is perfectly healed up.

Chap. XXXVII.

Of the wounds of the Nerves, and nervous parts.

He continuity of the nervous parts is divers ways loosed by the violent incursion of external things as by things which contuse, batter and grinde in funder, as by the blow of a stone, cudgell, hammer, lance, bullet out of a gun, or crostebow; by the biting of greater teeth, or the pricking of some sharpe thing, as a needle, bodkin, penknife, arrow, splinter; or the puncture of some venomous thing, as of a Sea Dragon; or the edge of some cutting thing, as a sword or Rapier; or of stretching things which violently tear asunder the nervous bodies. Hence therefore it is, that of such wounds some are simple, others compound, and the compound, some more compound than other. For of these some are fa-
the nervous and bloody perfecution and fiction, others decease and long; some runne along the nervous body, others runne broad ways; some cut the part quite off, others only a portion thereof. The symptoms which follow upon such wounds are, vehement pain, and delusion, inflammation, absced, feaver, delirium, bowing, convulsion, gangrene, spitally, whither often death ensues by reason of that sympathy, which all the nervous parts have with the braine. Amongst all the wounds of the nervous parts, there is none more to be feared than a puncture, or prick, nor any which causet more cruel and dangerous symptoms. For by reason of the strangeness of the wound, medicines can neither be put in, nor the banious matter passe forth; now the banious matter by long stay acquires virulence, whereby the nervous parts are tainted and swollne, suffer pain, inflammation, and other symptoms, of these the wounds are most dangerous, by which the nervous and membranous bodies are but halfe cut off. For the portion whereof which remains whole, by its drawing and contracting its self towards the original, causeth great pain and convulsion by sympathy. The truth hereof is evident in wounds of the head, as when the hair is halfe cut, or when it is cut to apply a Trepan, For the cutting thereof infers farre greater pain, than when it is cut quite off. Wherefore it is fater to have the nervous body cut quite off, for so it hath no communty, nor consent with the upper parts, neither doth it labour, or strive to refiit the contrariety, and as it were fight, is the caufe of pain; yet there arises another mifery from fuch a wound, for the part whereinto the edge which is thus cut under passe, thence forwards loseth its action.

A wound of the nervous parts indicates contrary to the general cure of wounds.

Chap. XXXVIII.

Ofe the cure of wounds of the nervous parts.

It is the ancient doctrine of the ancient Phisicions, that the wounds of the nervous parts should not presently be agglutinated, (which notwithstanding the general and first indication usually taken from the solution of continuity requires) but rather, chiefly if they be too strait, that the punctures should be dilated, by cutting the parts which are above them, and let them be kept long open, that the fisfl may passe freely forth and the medicine enter well in. Yet I in many cures have not followed this counsel, but rather that which the common indication requires. That cure is in fresh memory which I performed upon Monsieur le Coe, a Proctor of the spiritual court, who dwelt in our Ladies firetce; he gathering and binding up some loose papers, ran a penknife which was hid amongst them, through his hand. Also one of his neighbours who went to spit a piece of beefe, thurf the spit through the middf of his hand. But I presently agglutinated both their wounds, without any danger, dropping presently in at the firft dressing a little of my balsame warme, and putting about it a repelling & alltringent medicine, & by this meanes they were both of them healed in a short time, no symptome thereof happening. Yet I would not have the young Chirurgion to run this hazard, for first he must be well pratticed and accommo ded to know the tempers and habits of men; for this manner of curing would not doe well in a plethoric body, or in a body replete with ill humour, or enuaded with exquifite fene. Therefore in such a case it will be safer to follow the course here fer downe. For wounds of the nerves doe not only differ from other wounds, but also among themselves in manner of curing. For although all medicines which draw from farre, and waste banious humors, may be reputed good for the wounds of the nerves, yet those which must be applyed to punctures and to those nerves which are not wholly laid open, ought to be farre more powerfull, sharpe and drying, yet to that they be not without biting, that so penetrating more deeply they may draw forth the matter, or else confome and discourse that which cyther lies about the nerves, or moistens their substance. On the contrary when the finewes are bare from fith and the adjoyning particles, they stand in neede but of medicines, which mayone dry. Here you may furnish your selves with sufficient store of medicines good for the nerves howsoever pricked. As R. Terenchth. com. & oleo vitisia &c, &c. aqua vitis param.; Or R. oleo Terenchth. & aqua vita, &c. aqua vita perm. Or R. oleo Terenchth. & aqua vita, &c. euphorb. &c. Or R. radices Draconis, Primula, va leriana, & gentiana expiicata, &c. in pulvere redietis, miffe cum deceto century, ant
Lib  io.

Wounds of each Part.

ant else, ant exanguiæ mater; drop hereof warme into the wound as much as shall suffice. Or else put some Hogges, Geese, Capons, or Beares greade, old oilie, oile of Lilies or the like, to Calamine, pure Rosein, opopanax dissolved in aqua vitez and strong vinegar. Or Rosel hyssoporium, sambuci & de euphorbio an. 3. j i. fulphurix vizi subtiliter pulverisati 3. gummi ammoneiaci, belliij. an. 3. j. aceti bomei 3. j. vermuin terreff. preparat. 3. fullant omnia simad ad conflagrationem aceti. Let as much hereof as shall suffice be dropped into the wound; then apply this following csetate, which draws very powerfully. Oxal. apar. cerisi. 3. cerisi, 3.的故事. 3. aetioylanis albus cum gummi. 9. gummi bellii in aceto dissolutorum an. 3. j. resin pino gum. eleni, picea metalbi an. 3. v. cero quod sufficit, fiat ceratium fatis male. We must use somewhiles one, somewhiles another of these medicines in punctures of the Nerves with choice and judgement, according to their conditions, manner, depth, and the temperaments and habitation of the wounded bodies. But if the paine yeeld not to such remedies, but rather increase with the inflammation of the affected part, a swelling of the lips of the wound, and sweating forth of a feirous, thinne and vitulente matter or filth, then you shall pourne into the fcarlet oyle, and shall touch three or foure times not onely the surface of the wound but the bottom thereof with a ragge dipped therein and tyed to the end of a spstula. For this will take away the feife from the Nerve, Tendon, or Membrane, like as if they were burnt with a cauterie, and so the paine will be eafeed. So in the most grieuous paines of rotten teeth, the thrusting of an hot iron into their roots, or stopping them with cotten dipped in oyle of Vitrioll, or aqua vitez, gives most certain ease; for by burning the Nerve which is inserted into their roots, the feife and to consequently the paine is taken away. So also in malignant, gnawing, eating, and spreading ulcers, which are always associated with much paine, the paine ceases by applying an Eleboraticke, as the ponder of Alum, or Mercury, or egypiacum made somewhat more strong than usual. That the young Chirurgion may be more ready for this practice and the use of the former remedies, I have thought good to insert the following History both for the late necesse of the thing and the pleasent memory of the most laudable Prince.

Charles the ninth the French King being sick of a feaver, Monsieur Chapellan and Castellan his Physicians thought it fit hee should be let blood, for the performance whereof, there was called a Chirurgion wondrous famous for that businesse; but when he by chance had prick’d a nerv in head of a wine, the King cried out, that he felt a mighty paine in that place. Then I bid, that the ligature should straightways be loosed, otherwise the arme would pretently be much swelled. But he going slowly about it, behold the arme begun to swell with such contraction, that he could nor bend it, nor put it forth, and cruel paine molesteth not only the prickt particle, but all the whole member besides. I forthwith laid upon the wound a plaster of Bellas to hinder the agglutination thereof, and then I wrapped all the arme in a double linen cloth dipped in oyscrate, putting upon it an expulsive ligature, which beginning at the wrth & ending at the top of the shoulder, might keep the blood and spirits from fear of defluxion and inflammation. This being thus performed, we went aside to confide what was necessary to be done, both to allay the paine, as also to divert the other symptoms, which usually happen upon punctures of the nerves, I being desirous, thus delivered my opinion, that in my mind, there were nothing better than pretently to drop into the wound some oyle of Turpentine warme and mixed with a little aqua vitez. And then all the arme should be covered with a plaster of Discolattheor dissolvd in vinegar and oyle of Rose, bound over and besides with the expulsive ligature, which we formerly mentioned. For the oyle and aqua vitez have a faculty to penetrate into the bottome of the wound, & to exhaust and dry up the feirous and vitulente humour, which sweats from the substance of the prickt nerve, and also to mitigate the paine by its actual heat. Furthermore the expouder Discolattheor hath a faculty to diffuse the humour which hath already fallen downe into the arme, and to hinder the entrance and diffluxion of any new matter. And the ligature is such as by its moderate attrition would serve to strengthen the muscles, and to preffe out and repel the humour which were fallen downe into the upper part, and to prohible that which is ready to fall downe. Mine advice being approved of the Physitions...
both in word and deed, the pain was mitigated. But the humour (layed in the part) for the dilolving and drying whereof, this following remedy was used.

A diuring
and drying ca
se, laitum.

Re far, hortis & orii, an. 2, l. for chamam, & melis. an. p. lii; buty, recentia fia sals. 25, liquor barbatonii, acrid. sals. cataplama ad formam puls. By these remedies the King at the last three months space was perfectly healed, so that there remained no signe of the depraved action in the part. But if at any time there shall be so great contumacie, that it will not yield to these means, but that there is imminent danger of a convulsion; it will be better to cut it in sunder whether Nerve, Tendon or Membrane, than to expose the patient to the danger of a deadly convulsion; for thus indece the peculiar action of that part will be lost, but the whole body preferred thereby; for so we had determined by common consent, that if the paine which afflicted the King would not yield to the prescribed remedies, either to poure in scalding oyle, or else to cut the finew quite asunder.

For the late and sad memory of Mistris Ceurtin dwelling in the streete of the holy-Croste was in our mindes; who of a vein not well opened in her arm fell into a Gangraene and total mortification of that whole part, of which shee died, because shee was not drest with the formerly mentioned medicines. Yet we must abstain from these too powerful remedies, when the pricked nerve shall lye bare, for else the paine would be esceptred, and more grievous symptoms follow. Wherefore as I have formerly wished, more milde medicines must be applied, which may dry up the lecherous humour without biting or acrimony as Vitercbinth. venet. in ag. rofjouixyboli armen. subtiler fulverifatt. lausecct. Our Balmalle also is excellent in this case, and this of yriges which follows:

R, olei. rofari. comphacri. 25, olei de terebinth, 3, iij. fuccis. planag. 3, iij. femin. hyperici anniquantis. iij. jactis. decies. iij. aqua planag. 3, iij. antimonii j. fucis. brevis. & solidam. axi. iij. coronarium tertium. cum vino. iij. bulbunt omnis. finulis dempta. iij. aqua. cyathe. deceilitiis. bordes. ad compositio: aqua & vinum. coletur. fucis. signis. adminovantur. addecet. tisam. & fiat luminament. corona alia. & iiij. edox. This liniment affwages paines, and covers the bared nerves with flesh. This cure of punctured nerves, may with choice and judgement and observing the proportion of the parts be transferred to the pricked Tendons and membranes. But take this as a general and common rule, that all nervous bodies howsoever hurt, are to bee comforted by anointing them with hot oyles, such as the oiles of Bayes, Lillies, of Wormes, Sage, or some other such like remedy being applyed to their originals and more notable passages; as to the original of the spinal marrow, the armpis and groines. Neither doe I thinke it fit in this place to omit an affecd which sometimes happens to the large Tendon of the heele, of which we formerly made mention. For oft times is rent or torn by a small occasion without any signe of injury or solution of continuity apparent on the outside as by a little jumpce, the flipping aside of the foil, the too nimble getting on horseback, or the flipping of the foole out of the stirrup in mounting into the saddle. When this chance happens it will give a cracke like a Coachesmen whip above the heele, where the tendon is broken, the depressed cavity may be felt with your finger, there is great paine in the part, & the party is not able to goe. This mischance may be amended by long lying and resting in bed, and repelling medicines applyed to the part affected in the beginning of the disease, for feare of more grievous symptomes; & then applying the Blacke plaister, or Discilitisus or some other such as neede shall require; neither must we hereupon promise to our selves or the patient certaine or absolute health. But on the contrary at the beginning of the disease we must foretell, that it will never be so cured but that some reliques may remaine, as the depression of the part affected and depra-vation of the action and going; for the ends of this broken or relaxed Tendon by reason of its thickened and contumacious cannot easily be adjusted, nor being adjusted united.
Becaufe the wounds of the joints have something proper and peculiar to themselves, besides the common nature of wounds of the Nerves, therefore I intend to treat of them in particular. Indeed they are always very dangerous, and for the most part deadly, by reason of the nervous productions and membranous Tendons wherewith they are bound and engirt, and into which the Nerves are inserted; whereby it comes to pass, that the exquisite sense of such like parts will easily bring maligne symptoms, especially if the wound poiffe an internal, or as they term it, a domestique part of them; for example, the armepics, the bending of the arm, the inner part of the wrist, and ham, by reason of the noable Veins, Arteries and Nerves of these parts, the heated continuance of all which brings a great flux of blood, sharp paine and other maligne symptoms, all which we must refist according to their nature and condition, as a flux of blood with things flying bleeding, paine with anodynes. If the wound be large and wide, the ferved parts shall be jointed with a future, leaving an orifice in the lower part, by which it comes to pass, that the quiture may passe forth. This following pouder of Vesget description must be firewed upon the future.

R. thornis, sanguis, decocis, boli armen, terra sigill, an. 3ij., aloes, mastich, an. 3j., fistulae subtilis. And then the joint must be wrapped about with a repercussive medicine composed of the whites of eggs, a little oyle of Roses, Bale, Mastich, and barly flour. If it be needful to use a Tent, let it be short and according to the wound thicke, left it cause paine: and moreover let it be adorned with the yolle of an egg, oyle of Roses, washed terpurine and a little faffen. But if the wound bee more short and narrow, it shall be dilated, ifthere be occasion, that so the humour may passe away more freely. You must ret the part, and beware of using cold, relaxing mollifying, humecting, and unctuous medicines, unlefe percadventure the sharpenesse of the paine must be mitigated. For on the contrary, astringent and deficcant medicines are good, as this following cataplasm.

R. sarsa, mavis, farina, boric, & subarium, an. 3jij., formam cham a. & melil. an m. 8. Terebinth. 3ij., melis communi 3j. el. myr里斯 3j oxymelius, vel oxycrat. vel lux vig. com. quantum suavis, fistulae ad formam pulsu. Or you may compose one of the Lees of wine, Wheate braine, the pouder of Oaken baike, cypresse nuts, gallis and Turpentine and such like, that have an astringent, strengthening and drying qualitie, and thereby allaying paine, and hindering the defluxion of humours. This following medicine is astringent and agglutinative.

R. Terebinth. oren. 3j. ag. viscaparam. pulveris mastich, aloes, myrrha, boli armen. an. 3ij. And also our balseame will be good in this case, for to be that, you add hereeto so much pouder which dryes without acrimonic at occasion shall serve. I admonished you before to take heed of cold, and now againe for it is hurtful to all wounds and ulcers, but especially to thefe of the nervous parts; hence it is that many dyes of small wounds in the winter, who might recover of the same wounds though greater in the Summer. For cold according to Hippocrates is nipping to ulcers, hardens the skin, and hinders them from suppuration, extinguiheth natural heat, caules blackenes, cold agathiss, convulsions and deliriums. Now divers excrements are cast forth of wounds of the joynts, but chiefly albugineous, that is, resembling the white of an egge, and mucous, and sometime a very thimne water, all which vantage of the nature of that humour which nourisith thefe parts. For to every part there is appropriate for his nourishment and conservation, a peculiar Balseame, which by the wound flows out of the fame part, as out of the branches of the Vine, when they are pruned, their radical moisture or juice flows, whence also a Callus procedes in broken bones. Now this fame mucous and albugineous humour, flow and as it were frozen flowing from the wounded joints, shewes the cold disterper of the parts, which causes paine, not to be overcome by medicines only potentially hot. Wherefore to correct
correct that, we must apply things actually hot, as beafts and swines bladders half
full of a diffusing decoction, or hot bricks quenched in wine. Such actual heat helps
nature to concoct and diffuse the superficial humour impact in the joynts, and
strengthens them, both which are very necessary, because the natural heat of the
joynts is so infirm that it can scarce actuate the medicine unless it be helped with
medicines actually hot. Neither must the Chirurgeon have the least care of the fig-
ure and posture of the part, for a vicious posture increases ill sympotmes, uses to
bring to the very part though the wound be cured, distortions, numbness, incurable con-
traction, which fault least he should run into, let him observe what I shall now
say.

If the forepart of the shoulder be wounded, a great bolster must be under the
armepit, and you must carry your arme in a scarfe, so that it may beare up the lower
part of the arme, that so the top of the shoulder may be elevated somewhat higher,
and that so it may be thereby more speedily and happily agglutinated and confor-
dated. If the lower part be wounded, when flesh begins to be generated and the
lips of the wound to meete, you must bid the patient to move and stirre his armes
divers ways ever and anon, for if that be omitted or negligently done, when it is
cicatrized then it will be more stifffe and leffe pliable to every motion, and yet there is
a further danger lest the arme should totally looke its motion. If the wound be upon
the joynt of the elbow, the arme shall be placed and swathed in a middle posture, that
is, which neither too straitly bowes it, nor holds it too stiffly out, for otherwise when
it is cicatrized, there will be an impediment either in the contraction or exension.
When the wound is in the wrift, or joynts of the fingers either externally or interna-
) I m a s e, the hand must be kept halfe shut, continually moving a ball therein. For if the
fingers be held straight stretched forth, after it is cicatrized, they will be unapt to take
up or hold any thing, which is their proper faculty. But if after it is healed, it remaine
halfe shut, no great inconvenience will follow thereon, for so hee may use his hand
divers ways to his sword, pike, bridle and in any thing else. If the joynts of the Hip
be wounded, you must so place the patient that the thigh bone may be kept in the ca-
vinity of the hucklebone, & may not part a haires breadth therefrom, which shall be done
with linen bolsteres and ligatures applied as is fitting, and lying full upon his back.
When the wound shall begin to cicatrize, the patient shall use to move his thigh ev-
ery way, lest the head of the Thigh-bone flique in the cavity of the huckle-bone
without motion. In a wound of the kneie, the legge must be placed Straight out, if the
patient desire not to be lame. When the joynts of the feete and toes are wound-
d, these parts shall neither be bended in nor out, for otherwise he will not be able
to goe.

To conclude, the site of the feete and legge, is quite contrary to that of the arme
and hand.

Chap. XL.

Of the wounds of the Ligaments.

He wounds of the Ligaments, besides the common manner of curing these
of the Nerves, have nothing peculiar, but that they require more powerfull
medicines, for their agglutination, desiccation and consolidating, both be-
cauce the Ligamentall parts are harder, and dryer, and alfo for that they are voyd of
fence. Therefore the forefaid cure of Nerves and joynts may be used for these
wounds: for the medicines in both are of the same kinde, but here they ought to be
stronger and more powerfully drying. The Theorie and cure of all the sympotmes
which shall happen thereupon have beene expressed in the Chapter of curing the
wounds of the nervous parts, so that heere we shall neede to speake nothing of them,
for there you may finde as much as you will. Wherefore here let us make an end of
wounds, and give thanks to God the author and giver of all, good for the happy pro-
ces of our labours, and let us pray that, that which remaines may be brought to a
happy end, and secure for the health and safty of good people.

The end of the tenth booke.
OF WOUNDS
MADE BY GUNSHOT,
OTHER FIERIE ENGINEES, AND
ALL SORTS OF WEAPONS.

THE ELEVENTH BOOKE.

The Preface.

I

Have thought good here to premise my opinion of the original, encreafe, and hurt of fiery Engines, for that, I hope it will be an ornament and grace to this my whole treatife: as alfo to intice my Reader, as it were with these junclcts, to our following Banquet so much favouring of Gunpouder. For thus it shall bee knowne to all whence Guns had their original, and how many habits and shapes they have acquired from poore and obfure beginnings, and laftly how hurtfull to mankind the use of them is.

Polydore Virgili wrieth that a Germane of obfure birth and condition was the inventor of this new engine which we terme a Gun, being induced thereto by this occasion. He kept in a mortar covered with a tyle, or plate, for some other certaine uses a pouder (which since that time for its chiefe and knowne faculty, is named Gunpouder.) Now it chanced as hee strucke fire with a fteele and flint, a fparke thereof by accident fell into the mortar, whereupon the pouder suddenly catching fire, cast the stone or tyle which covered the mortar, up on high; hee flood amazed at the novelty and strange efleffe of the thing, and withall observed the formerly unknowne faculty of the pouder, so that he thought good to make experiment thereof in a small Iron trunk framed for that purpose according to the intention of his minde. When all things were correspondent to his expedation, he firft fhewed the ufe of his engine to the Venetians, when they warred with the Genoferes about Fojf in the yeare of our Lord 1540. Yet in the opinion of Peter Meffiar, their invention must have bene of greater antiquity; for it is read in the Chronicles of Alphonfus the eleventh King of Castile, who subdued the Illes Argencites, that when he besieged the cheefe Towne in the yeare of our Lord 1342, the besieged Moores flot as it were thunder against the affailants, out of Iron mortars. But we have read in the Chronicles written by Peter Bifhop of Leon, of that Alphonfus who conquered Toledo, that in a certaine sea fight fought by the King of Tunis, againft the Moorifh King of Seville, whose part King Alphonfus favoured, the Tunesians cast lightning out of certaine hollow Engines or Trunkes with much noife. Which could be no other, than our Guns, though not attained to that perfection of art and execution which they now have.
I think the devier of this deadly Engine hath this for his recompence, that his name should be hidden by the darkness of perpetual ignorance, as not meriting for this his most pernicious invention, any mention from posterity. Yet *Andreas Thevent* in his *Colofomy* published some few years ago, when he came to treat of the *Sweat*, the inhabitants of Germany, brings upon the authority and credit of a certain old Manuscript, that the Germane the inventor of this warlike Engine was by profession a monk and Philosopher or Alchymist, born at *Erfurgh*, and named *Casianus Ancilzen*. Howsoever it was, this kind of Engine was called *Bombardia* *Gun*, from that noise it makes, which the Greeks and Latines according to the found call *Bombus*; then in the following ages, time, art and man: mulctiously added much to this rude and unpollished invention. For first for the matter, Brass and Copper, metallis farce more tractable, fusible and legible subjic to rust, came as supplies to iron. Then for the forme, that rude and undigested barrel, or mortar-like maffe, hath undergone many formes and fashions, even so farce as it is gotten upon wheels, that so it might run not onely from the higher ground, but also with more rapid violence to the ruin of mankind; when as the first and rude mortars seemed not to bee so nimbly traversed, nor sufficiently cruel for our destruction by the onely cutting forth of iron & fire. Hence sprung these horrible monsters of Cannons, double Cannons, Ballards, Muskets, field peices, hence these cruel and furious beasts, Culverines, Serpenines, Basiliskes, Sackers, Falcons, Falconets, and divers other names not onely drawn from their figure and making, but also from the effects of their cruelty. Wherefore certainly I cannot sufficiently admire the wildefaces of our Ancitours, who have so rightlie accommodated them with names agreeable to their natures; as those who have not onely taken them from the swiftest birds of prey, as Falcons; but also from things most harnefull and hateful to mankind, such as Serpenes, Snakeis, and Basiliskis. That so wee might chiefly difcern, that these engines were made for no other purpose, nor with other intent, but onely to be employed for the speedie and cruel slaughter of men; and that by onely hearing them named we might detest and abhorre them, as pernicious enemies of our lives. Yet pastie other engines of this offpring, being for their quantitie small, but so much the more pernicious and harnefull, for that they nearer affaiie outlive, and may treacherously and forthwith seize upon us, not thinking nor fearing any such thing; so that we can scarce have any means of escape; such are Pioltolls and other small hand-guns, which for forthness you may carry in your pocket, and to privily and hastily taking them forth oppose the careless and secure. Bowling peices which menually carry upon their shoulders, are of the middle ranke of these engines, as also Muskers and Caleevers, which you cannot well discharge unless lying upon a Reft, which therefore may be called Breaf-Guns for that they are not laid to the cheque, but against the Breast by reasone of their weight and forthness; All which have beene invented for the commodity of footmen, and light horsemen. This middle fort of engine we call in Latin by a generall name selenus, in imitation of the sound, and the Italians who terme it *Sempetre*; the French call it *Harquebus*, a word like wise borrowed from the Italians, by reason of the touch-hole by which you give fire to the pece, for the Italians call a hole *Bacinn*. It is termed, *Arcus* (i) a Bow; for that at this present it holds the same place in martiall affairs, as the Bow did of old; and as the Archers formerly, so at this day the Musquetiers are placed in front. From the fame wretched shoppe and magazine of cruelty, are all sorts of Mines, Countermines, pots of fire, trains, fire Arrows, Lances, Crofflebowes, bar- rels, balls of fire, burning faggots, Granats, and all such fiery engines and Inventions, which clofely stuffed with fewell and matter for fire, and cast by the defendant upon the bodies and Tents of the affailants, easily take fire by the violence of their motion. Certainly a most miserable and pernicious kinde of invention, whereby we often see a thousand of heeleffe men blowne up with a mine by the force of gunpowder, otherwhiles in the very heat of the conflict you may see the fourest fouldiers feas- ed upon with some of these fiery Engines, to burne in their harnesse, no waters being sufficiently powerfull to restrain, and quench the raging and wafting violence of such fire cruelly spreading over the body and bowells. So it was not sufficient to have armes.
Lib. I. and other fiery Engines, and all sorts of Weapons.

407

Arms, Iron and fire to make destruction, unless also that the stroke might be more speedy, were had furnished them, as it were with wings, so to fly more hastily to our own destruction, furnishing the-bearing death with wings to more speedily to opposite man, for whose preservation, all things contained in the world were created by God. Verily then when I consider with my mind all the sorts of warlike Engines, which the ancients used, whether in the field in fortresses, as Bowes, Darts, Crossbows, Slings; or in the assault of Cities; and shaking or overturning their walls, as Ramrods, Horses, woodden towers, flings and such like; they seem to me certaine childish sports and games made only in imitation of the former. For these modern inventions are such as easily exceed all the best appointed and cruell Engines which can be mentioned or thought upon, in the shape, cruelty and appearance of their operations. For what in the world is thought more horrid or fearful than thunder and lightning? and yet the hurtfulnesse of thunder is almost nothing to the cruelty of these infernal Engines, which may easily appeare by comparing together both their effects. Man alone of all creatures is not always killed by being touched with thunder; but it immediately killeth all other things which are subject to be toucht therewith.

Nature bestowing this honour upon him, seeing so many creatures exceede him in strength: For all things ly contrary to man, and man, unless he bee overthrown with it, doth not dye therefore. But these fire-spitting Engines doe no more spare man, than they doe other creatures, and kill without difference from whence forever they come, whither forever they are carried, and howsoever they touch. There are many, but more are fayd to be the remedies against thunder, for besides the charmes whereby the ancient Romans did suppose they might be driven away, they never penetrate deeper into ground than five foote, therefore such as were fearefull thought the deeper Caves most safe. Of those things which grow out of the earth they doe not touch the Bay tree, and that was the cause that it was counted a signe of victorv both in ancient and modern times. Wherefore Tiberius Caesar otherwise a conriderator of God and religion, so hee who indued with the Mathematical sciences thought all things governed by fate, yet because hee exceedingly feared thunder, hee always carried a Lawrell wreath about his necke when the aire was troubled, for that this kind of leafe is reported not to be touched by thunder. Some report that he made him tents of Seales skynnes, because it toucheth not this kind of creature of all these things that live in the Sea, as neither the Eagle amongst birds, which for that is fained to bee free from them. But on the contrary, charmes, the victorius Bay, the Seale or Sea-calfe, the Eagle or any such thing proftits nothing against the violence of these fiery Engines; nor a wall of tenece foote thicke will advantage. Lately, this argues the immense violence of brazen Cannons above thunder, for that thunder may be dispered and driven away with the noise and ringing of Bells, the sounding of Trumpets, the tinkling of brazen kettles, yet also by the shooting of such great Ordinance, to wit, the clouds, by whole collision and fight the Thunder is causd, being dispered by this violent agitation of the aire, or else driven further to more remote parts of the skies. But their fury once provoked, is layd by no opposition, appeare by no remedy. As there are certaine seasons of the yeare, so also there are certaine Regions of the earth, wherein Thunder is seldom or never heard. Thunders are rare in Winter and Summer, and that for contrary causes; for that in Winter the dense aire is thicken'd with a thicker cote of clouds, and the frose and cold exhalation of the earth extinguisheth what fiery vapours sooner it receiveth; which thing keepes Scythia and the cold countries about it free from Thunder. And on the contrary, too much heat preserves Egypt. For hot and dry exhalations of the earth are condened into very thine, subtile and weak clouds. But as the invention, so also the harme and tempest of great Ordinance, like a contagious pestilence is spread and rages over all the earth, and the skies at all times found againe with their reports. The Thunder and Lightning commonly gives but one blow, or stroke; and that commonly strikes but one man of a multitude; But one great Cannon at one shot may lysele and kill an hundred men. Thunder, as a thing natural falls by chance, one while upon an high oake, another while upon the top of a mountain,
THE FIRST DISCOURSE.
WHEREIN WOUNDS MADE BY GUNSHOT ARE FREED FROM BEING BURNT, OR CAUTERIZED ACCORDING TO PIGE'S METHODS.

In the year of our Lord 1536, Francis the French King, for his acts in warre and peace filled the Great Lent a puissant Army beyond the Alpes, under the government and leading of Anne de Montmorenci, a high Constable of France, both that he might receive Turin with victuals, soldiers, and all things needful, as also to recover the Cities of that Province taken by the Marquis of Giscal General of the Emperours forces. I was in the Kings Army the Chirurgion of Monsieur de Montmorenci General of the foone. The Imperialists had taken the straits of Savoie, the Castle of Villene, and all the other passages; so that the Kings army was not able to drive them from their fortifications but by sight. In this conflict there were many wounded on both sides with all sorts of weapons, but chiefly with bullets. I will tell the truth, I was not very expert at that time in matters of Chirurgery; neither was I used to dress wounds made by Gunshot. Now I had read in John de Pigo, that wounds made by Gunshot were venenate or poifoned, and that by reason of the Gunpouder. Wherefore for their cure, it was expedient to burn or cauterize them with oyle of Elders scalding hot, with a little Treacle mixed there-
with. But for that I gave no great credit neither to the author, nor remedy, because I knew that cauteries could not be pow'd into wounds, without excessive pain; and, before I would run a hazard, determined to see whether the Chirurgians, who went with me in the army, used any other manner of dressing to these wounds. I observed and saw that all of them used that Method of dressing which Vesey preferable and that they filled as full as they could, the wounds made by Gun-shot with Tens and pledgers dipped in this saling Oyle, at the first dressing, which encouraged me to do the like to those, who came to be dress'd of me. It chanced that by reason of the multitude that were here, I wanted this Oyle. Now I knew that there were some few left to be dress'd, I was forced, that I might seeme to want nothing, and that I might not leave them undress'd, to apply a digestive made of the yolk of an egg, oyle of Roses, and Turpentine. I could not sleep all that night, for I was troubled in mind, and the dressing of the precedent day, (which I judged unjustly troubled my thoughts) and I feared that the next day I should find them dead, or at the point of death by the poiison of the wound, whom I had not dress'd with the saling oyle. Therefore I rose early in the morning, I visited my patients; and beyond expectation, I found such as I had dress'd with a digestive ointment, free from vehement of paine to have had good effect, and that their wounds were not inflamed, nor tumify'd; but on the contrary the others that were burn'd with the saling oyle were feverish, torment'd with much paine, and the parts about their wounds were swoln. When I had many times try'd this in divers others, I thought thus much, that neither I nor any other should ever cauterize any wounded with Gun-shot. When wee firft came to Parus, there was there a Chirurgion farre more famous than all the rest in arrificially and happily curing wounds made by Gun-shot; wherefore I laboured with all diligence for two yeere time to gain his favour and love, that at the length, I might learne of him, what kind of Medicine that was, which he honoured with the glorious title of Balsame, which was so highly esteemed by him, and so happy and successful to his patients; yet could I not obtaine it. It fell out a small while after that the Marlhall of Mececaus the Kings Lieutenent-Generall ther in dy'd, wherefore I went to my Chirurgion, and told him that I could take no pleasure in living there, the favourer and Mececaus of my studies being taken away; and that I intend'd forthwith to returne to Parus, and that it would neither hinder, nor disrepute him to teach his remedy to me, who should be so farre remote from him. When he heard this, he made no delay, but prefently wished mee to provide two Whelpes, 1 pound of earthwormes, 2 pounds of oyle of Lilies, free oounces of Venice Turpentine, and one ounce of aqua vitæ. In my preience he boil'd the Whelpes put alvive into that oyle, unti the fifth came from the bones, then prefently he put in the Wormes, which he had first kill'd in white wine, that they might be cleans'd from the earthy droffe wherewith they are usually releacle, and then hee boil'd them in the same oyle so long, till they became dry, and had spent all their juice therein: then hee fryned it through a towell without much prefling; and added the Turpentine to it, and laffy the aqua vitæ. Calling God to witnesse, that he had no other Balsame, where-with to cure wounds made with Gun-flor, and bring them to suppuration. Thus he sent me away as rewarded with a most precious gift, requesting mee to keepe it as a great secret, and not to reveale it to any. When I came to Parus, I went to visit Silvius the Kings professor of Phyficke be well knowne by name to all schollers for his great learning; he kep me long that he might dine with him, and diligently enquires of me, if I had obser'd any new Method of curing wounds made by Gun-flor, and combustions occasioned by Gunpowder. Then I affirmed to him, that Gun-pouder did not participate any thing of the poiison, for that none of thefe things, whereof it is compounded are poisonous; which reason ought to free the whole composition from suspicion of poiison. And that experience confirm'd this reason, for I had seen many soldiers, who would drink a great quantity of this powder with wine, because they were perfwade, that this drinke would free them from maligne symptoms when they were wounded; yet I give no credit to this perswasion, and laffy for that many with-
Of wounds made by Gunshot,

For the Bullets, I affirm, that they cannot conceive such heat, as to become causticke. For if you shoot them out of a Gun against a hard stone, yet you may prickly take them up without any harme in your hands, though by striking upon the stone, they should become more hot. For the combustions cau’d by Gunpowder, I observed no speciall nor peculiar remedy, which might make their cure different from other combustions. To which purpose I related this ensuing history.

One of the Marshall of Montefjon his Kitchens, fell by chance into a Caldron of Oyle being even almost boiling hot, he being called to dresse him, went to the next Apothecaries to fetch refrigerating medicines commonly used in this case: there was present by chance a certaine old country woman, who hearing that I desired medicines for a burne, persuaded me at the first dressing, that I should lay to raw Onions beaten as a little salt; for so I should hinder the breaking out of blisters or pustules, as these had found by certaine and frequent experience. Wherefore I thought good to try the force of her Medicine upon this greatly scullion. I the next day found those places of his body where the Onions lay, to bee free from blisters, but the other parts which they had untouched to be all blistered.

It fell out a while after, that a German of Montefjon his guard had his finger full of Gunpowder set on fire, whereby his hands and face were grievously burnt; I being called, laid the Onions beaten as I formerly told you, to the middle of his face; and to the rest I laid medicines usually apply’d to burnes. At the second dressing, I observed the part dresse’d with the Onions quicke free from blisters and excoriation, the other being troubled with both; whereby I gave credit to the Medicine. Besides also, I lately told him this, that I had observ’d, that that part dresse’d to draw forth bullets shot into the body, which sets the patients in the same posture and fire, as hee was when he receiv’d his hurt. Which things when I had told him, together with many other handled at large in this worke, the good old man request’d mee to publish in print my opinions concerning these things; that to the erroneous and hurtfull opinion of Physic I might be taken out of mens minds. To whose earnest entreaty when I had assented, I first of all caus’d to be dresse’d and carved many Instruments fit to draw forth Bullets and other strange bodies; then a short while after I first published this worke in the yeare of our Lord 1545, which when I found to bee well liked and approved by many, I thought good to set it forth the second time somewhat amended in the yeare 1552. And the third time augmented in many particulars in the yeare 1564. For I having followed many wars, and detined as Chirurgion in besieged Cities, as Mess and Hesdin, had observ’d many things under five Kings, whom I served with diligence and content. I had learn’d many things from most expert Chirurgions, but more from all learned Physitians, whose familiarity and favour for that purpose I always laboured to acquire with all diligence and honest Arts; that so if I might become more learned and skillfull by their familiarity and discourse, if there was anything especially in this matter and kind of wounds, which was hid from me, or whereof I was not well assured. Of which number I have knowen very few, who any thing feene in this kind of operation either by study, or experience in Warrs, who have not thought that wounds made by Gunshot ought to be dresse’d at the first with suppurative medicines, and not with scalding and Cau-

For this I affirm, which then also I testified to this good man, that I have foung very many wounds made in the fleshy parts by Gunshot, as easily cured as other wounds, which bee made by contusing things. But in the parts of the body where the bullet meets with bones and nervous particles, both because it teares and rends into small pieces those things which reftit, not onely where it toucheth, but further also, through the violence of the blow, therefore it causeth many and greevous symptomes, which are stubborn and difficult, and of times impossible to cure, especially in bodies replete with ill humors, in an ill constitution of the heaven and ayre, such as is hot, moyst and foggy weath,
ther, which therefore is subject to putrefaction; and in like manner a freezing and cold scald, which uses to mortifie the wounded parts not only of those that are hurt with Bullets, but in like sort with any other weapon; nor only in bony and nervous particles, but also in mucous. Whereby you may understand, that the difficulty of curing proceeds not from the venenate quality of the wounds, nor the combustion made by the Gunpowder, but the foulency of the patients bodies, and the ineffectuallness of the air.

For proofe whereof, I will set downe, that which I not long agoe observed in a Scotch Nobleman the Earle of Gordon, Lord of Achindoun, whom I cured at the appointment of the Queene Mother. He was shot through both his thighes with a Pistoll, the bone being not hurt nor touched; and yet the 32 day after the wound he was perfectly healed, so that hee had neither fever nor any other symptome which came upon the wound. Whereof there are worthy witnesses, the Archbishop of Glafco, the Scotch Embassador, Francis Bright and John Alton, Doctors of Physick, as also James Guillotus the Kings Chirurgion, and Giles Buzet a Scotch Chirurgion, who all of them wondered that this Gentleman was so soon healed, no acrid medicine being applied. This I have thought good to recite and set downe, that the Readers may understand, that I for 30 years agoe had found the way to cure wounds made by Gunshot, without scalding oyle or any other, more acrid medicine, unless by accident the illenece of the patients bodies and of the air caus'd any maligne symptomes, which might require such remedies besides the regular and ordinary way of curing, which shall more amply treated of in the following discourse.

ANOTHER DISCOURSE
OF THESE THINGS, WHICH
KING CHARLES THE NINTH, RETURNING FROM THE EXPEDITION AND TAKING OF
Rome, ENQUIRED OF ME CONCERNING WOUNDS
MADE BY GUNSHOT.

Or that it pleased your Majestie one day, together with the Queene Mother, the Prince of the Rocke upon Tom, and many other Noble-men and Gentlemen, to enquire of mee, what was the cause that the faire greater part of the Gentlemen and common Souldiers which were wounded with Guns, and other warlike Engines, all remedies used in vaine, either dyed, or scald, and that with much difficultie recovered of their hurts, though in appearance they were not very great, and though the Chirurgions diligently performed all things requisite in their Art; I have made bold to premise this Discourse to that Tractate which I determine to publish concerning wounds made by Gunshot, both to satisfy the desires of the Princes and of many Gentlemen, as also the expectation they have of mee, as being the Kings chief Chirurgion, which place being given me by Henry the second, Charles the ninth, a sonne most worthy of such a father, had confirmed; neither make I any question, but that many who too much infist upon their owne judgement, and not thoroughly consider the things themselves, will
Of wounds made by Gunshot.

Lib. II.

Of wounds made by Gunshot, upon the poyson brought into the body by the Gunpowder, or mixed with the Bullets while they are temper'd or call'd. Yet for all this, if they will courteously and patiently weigh my reasons, they shall e'ryther think as I doe, or at least shall judge this my endeavour and pains taken for the publicke good, not to be condemned nor condemned.

For I shall make it evident by most strong reasons drawn out of the writings of the Ancient both Philosophers and Physitians, and also by certaine experiments of mine owne, and other Chirurgians, that the malignitie and consummation which we frequently meete withall in curing wounds made by Gunshot, is not to be attributed e'ryther to the poyson carried into the body by the Gunpowder or Bullet, nor to burning imprinted in the wounded parts by the Gunpowder. Wherefore, to come to our purpose, that opinion must first be confuted, which accueth wounds made by Gunshot of poyson; and wee must shew, that there is neither any venenat substance, nor quality in Gunpowder, e'ryther if there should bee any, could it empoysen the bodies of such as are wounded. Which that wee may the more eazily performe, wee must examine the composition of such poudre, and make a particular enquiry of each of the simples, whereof this composition consists, what essence they have, what strength and facultys and lastly what effects they may produce. For thus by knowinge the simples, the whole nature of the composition consisting of them, will bee apparently manifest.

The simples which enter the composition of Gunpowder are onely three, Charcoal of Sallow or Willow, of Hempe stalkes, Brimstone, and salt Peter, and sometimes a little Youshaldia and each of there, if considered in particular, voide of all poyson and venenate quality. For first, in the Char-coale you shall observe nothing but drynesse, and a certaine subtlety of substance, by meanes whereof it fires so suddenly, even as Tinder. Sulphur or Brimstone is hot and dry, but not in the highest degree, it is of an oily and vitiform substance, yet so that it doth not so speedily catch fire as the Coale, though it remaine it longer being once kindled, neither may it be so speedily extinguished. Salt Peter is such, that many use it for Salt, whereby it is evidently apparent that the nature of such simples is absolutely free from all poyson, but chiefly the Brimstone, (which notwithstanding is more suspected than the rest.) For Disforide gives Brimstone to be drunk, or tupp'd out of a reare Egee to such as are Astmaticke, troubled with the Cough, (put up purulent matter, and are troubled with the yellow laundife.) But Galen applies it outwardly to such as are bitten by venemous Beasts, to scabs, teaters, and leprousies. For the aqua viva, it is of so tenuious a substance that it presently vanisht into air, and also very many drink it, and it is without any harme used in frictions of the exterior parts of the body. Whence you may gather, that this pouder is free from all manner of poyson, seeing these things whereof it consists and is composeth, want all fulpission thereof.

Therefore the Germane horsemen, when they are wounded with Shot, feare not to drink off cheerfully halfe an ounce of Gunpowder disolved in wine; hence periwading themselves freed from such maligne symptoms as usally happen upon such wounds, wherein whether they doe right or wrong I doe not here determine; the same thing many French Souldiers forced by no necessity, but only to shew themselves more courageous, also doe without any harme; but divers with good face do use to throw it upon ulcers, to dry them. Now to come to these, who thinke that the venenate quality of wounds made by Gunshot, springt not from the poudre, but from the Bullet wherewith some poyson hath beene committe or joyned, or which hath beene tempered or steeped in some poysonous liquor.

This may sufficiently serve for a reply; that the fire is abundantly powerfull to dissipate all the strength of the Poyson, if any should be pou'd upon of
or added to the Bullet. This much confirms mine opinion, which every one knows; The Bullets which the Kings soldiers used to shoot against the Towns- men in the siege of Rouen, were free from all poison, and yet for all that they of the Town thought that they were all poisoned, when they found the wounds made by them, to be incurable and deadly. Now on the other side the Towns-men were falsely suspected guilty of the same crime by the Kings Army, when as they perceived all the Chirurgions labour in curing the wounds made by the Bullets shot from Rouen, to be frustrated by their curiosity and maligne nature; each side judging of the magnitude and malignity of the caufe from the unhappy success of the effect in curing. Even as amongst Phyficians according to Hippocrates, all diseases are termed pestilent, which arifing from whatever common caufe, kill many people; so also wounds made by Gunshot, may in some respect be called pestilent, for that they are more refractory, and difficult to cure than others, and not because they partake of any poisonous quality, but by default of some common caufe, as the ill complexions of the patients, the infection of the aire, and the corruption of meats and drinks. For by these causes wounds acquire an evill nature and become leffe yielding to medicines. Now we have by these reasons convinced of error, that opinion which held wounds made by Gunshot for poisonous; let us now come to overthrow that which is held concerning their combustion.

First it can scarce be understand how bullets which are commonly made of Lead, can attaine to such heat, but that they must be melted; and yet they are so far from Gunshot melting, that being shot out of a Musket they will pierce through an armour and the whole body besides, yet remaine whole, or but a little diminifhed. Besides also if you shoot them against a stone wall, you may presently take them up in your hand without any hazard; though their heat by the striking upon the stone should be rather increased, if they had any.

Furthermore, a Bullet shot into a barrrell of Gunpouder, would presently set it all on fire, if the Bullet should acquire such heat by the shooting, but it is not so. For if at any time the powder be fired by such an accident, wee must not imagine that it is done by the bullet bringing fire with it, but by the striking and collision thereof against some Iron, or stone that oppoves or meets therewith, whence sparkes of fire proceeding as from a flint, the powder is fired in a moment. The like opinion we have of thatched houses, for they are not fiered by the bullet which is shot, but rather by some other thing as linen ragges, brown paper, and the like, which rogues and wicked persons fasten to their Bullets. There is another thing which more confirmes me in this opinion, which is, take a bullet of Waxe, and keepe it from the fire, for otherwise it would melt, and then it is against an inch board, and it will goe through it; whereby you may understand that Bullets cannot become so hot by shooting, as to burn like a cauter. But the Officers (may some fay) of such wounds are alwayes blacke. This indeede is true, but it is not from the effect of heart brought thither by the Bullet, but from the force of the contusion.

Now the contusion is exceeding great, both because the Bullet is round, and enters the body with incredible violence. Of which those that are wounded will give you sufficient testimony, for there is none of them, which thinkes not presently upon the blow, that as it were some poft, or thing of the like weight, falls upon the affected member, whence great paine and stupiditie poffesse the part, whereby the native heat and spirits are so much diffipated, that a Gangren may follow.

But for the Ecchary which they affirmative is made by the blow, and falls away afterwards, they are much mistaken. For certaine particles of the membranes and flesh contume and torne by the violence of the Bullet beguiles them; which presently purifying are leaved from the found parts by the power of nature and the separatting heat, which thing usually happens in all great Contusions. But for all that these so many and weighty reasons may free the Powder from all suspicion of Poison, and the Bullet from all thought of burning;
yet there are many who infisting upon Philosophical arguments, raise new strikes. For (say they) the discharging a piece of Ordinance is absolutely like Thunder and Lightning, which the rent and some clouds cast from the middle region, upon the earth, wherefore the Iron bullet which is shot out of the Cannon must needs have a venenous and burning faculty. I am not ignorant that Lightnings generated of a greasy and vicious exhalation, breaking the cloud wherewith it is encompassed, never falls upon the earth, but brings fire with it, one while more fubtile, another while more greasy, according to the various condition of the matter whence the exhalation hath arisen. For Seneca writes that there are three several kinds of Lightning differing in burning, condition and plenty. One of them penetrates or rather perforates by the tenuity of the matter of the objects which it touches. The other with a violent impetuosity breaks inunder and dispairs the objects, by reason it hath a more dense, compact and forcible matter, like as Whirlwinds have. The third, for that it consists of a more terrestrial matter, burns what it touches, leaving behind it the impression of the burning. Alto I know that Lightning is of a penetrant and finking nature, occasioned by the grossness and viscidity of the matter whereof it is, which matter taking fire sends forth to loathsomely and odiously a smell that the very wild-beasts cannot endure it; but leave their Denes, if they chance to be touched with such a lightning. Besides also, we have read in the northern history of Olaus Magnus, that in some places after a Lightning, you shall finde a whole plains spred over with Brimstone which Brimstone notwithstanding is extinguished, unprouitable and of no efficacy. But grant these things be thus, yet must we not therefore conclude, that the Bullets of the great Ordinance carry poison and fire with them into the wounds. For though there be many things like in Lightning and discharging great Ordinance, yet they have no similitude either in matter of substance, but only in effects whereby they shake, break inunder and disperse the bodies which withstand them. For Lightning and Thunder doe it by means of fire, and oft times of a stone generated in them, which is therefore termed, a Thunderbolt; But Ordinance by the bullet carried by the force of the air, more violently driving and forcing it forwards; Neither if any should by more powerful arguments force me to yeeld that the matter of Lightning and preaching of Ordinance are like, yet will I not therefore be forced to confesse that wounds made by Gunshot are combult. For according to Pliny, there are some Lightnings which consisting of a moist dry matter, doe shatter inunder all that withstands them, but doe not burne at all; others which are of somewhat a more humid nature, burne no more than the former, but oncly blacke such things as they touch; Lastly others, some of a more subtile and tenuous matter, whose nature (as Seneca faith) wee must not doubt to be divine, if but for this reason, that they will melt gold and silver, not harming the purfe; a sword, not hurting the scabbard; the head of a Lance, not burning the wood, and shed wine not breaking the vessel. According to which decree I can grant, that these Lightnings which break inunder, melt and dispurte, and performe other effects to full of admiration, are like in substance to the shot of great Ordinance; but not those which carry with them fire and flame.

In proofe whereof there comes into my minde the history of a certaine Souldier, out of whose thigh I remember I drew forth a Bullet wrapped in the taffety of his breeches, which had not any signe of tearing or burning. Besides, I have seene many who not wounded, nor so much as touched, yet notwithstanding have with the very report & wind of a Cannon bullet, falling close by their ears, fallen downe for dead, so that their members becoming livid and black, they have dyed by a Gangrene ensuing thereupon. These and such effects are like the effects of Lightnings which we lately mentioned, and yet they beare no signe nor markie of poysn. From whence I dare now boldly conclude, that wounds made by Gunshot are neither poisnous, nor burnt. But seeing the danger of such wounds in these last civil wars hath beene so great, univerval and deadly to so many worthy personages and valiant men, what then may have beene the cause thereof, if it were neither combustion, nor the veneneous quality of the wound? This must wee therefore now insist upon and somewhat hardly expelaine.
Lib I. and other fiery Engines, and all sorts of Weapons.

Those who have spent all their time in the learning and searching out the mysteries of Natural Philosophy, would have all men think and believe, that the four Elements have such mutual sympathy, that they may be changed each into other; so that they not onely undergo the alterations of the first qualities which are heat, coldness, dryness and moistune, but also the mutation of their proper substances by rarefaction and condensation. For thus the fire is frequently changed into ayre, the ayre into water, the water into ayre, and the water into earth; and on the contrary, the earth into water, the water into ayre, the ayre into fire; because these four first bodies have in their common matter enjoyed the contrary and fighting, yet first and principal qualities of all.

Whereof we have an example in the "Ball-bellowes brought out of Germany," which are made of brass, hollow and round, and have a very small hole in them, whereby water is put in, and out by the action thereof is rarified into ayre, and so they send forth windes with great noise, and blow strongly as soon as they are made up, and enjoy the contrary and lighting, yet first and principall qualities of all.

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things contained therein, friendly conspiring with the fairs from whom a divine virtue is infused therein. For the air diversely changed and affected by the fairs, doth in like manner produce various changes in the lower mundane bodies. And hence it is that Philosophers and Physitians doe so seriously with us to behold and consider the culture and habit of places, and constitution of the air, when they treat of preferring of health, or curing diseases. For in the earth the great power and dominion of the air is very apparent, as you may gather by the four fasons of the year; for in summer the air being hot and dry, heats and dries our bodies; but in winter it produceth in us the effects of winters qualities, that is, of cold and moisture; yet by such order and providence of nature, that although according to the various of fasons our bodies may be variously alter'd, yet shall they receive no detriment thereby, if so be that the fasons retain their reasonable fenes, from whence if they happen to digrefle, they raise and flire up great perturbations both in our bodies and minds; whole malice we can feare at home, because they encompaff us on every hand, and by the law of nature enter together with the air into the secret cabinets of our bodies both by occult and manifest passages. For who is he, that doth not by experience finde both for the commodity and discomfort of his health, the various effects of winds, (wherewith the air is commixt) according as they blow from this or that Region, or Quarter of the world. Wherefore feeing that the South wind is hot and moist; the North wind cold and dry; the East wind clear and fresh; the West wind cloudy; it is no doubt but that the air which we draw in by inspiration carries together therewith into the bowels the qualities of that wind which is then prevalent. When wee read in Hippiocrates, that changes of times, whether they happen by different winds, or vicissitude of fasons, chiefly bring diseases: for northerly winds doe condenfe, and ftrengthen our bodies, and make them active, well coloured and daring, by refuselating and vigorating the native heat; But southerly winds resolve and moisten our bodies, make us heavy, headed, dull the hearing, make the eyes and body lefe agile; as the Inhabitants of Narbon finde to their great bane, who are otherwise ranked among the moft active people of France. But if wee would make a comparison of the fasons and constitution of a year, by Hippocrates decree Droucts are more wholesome and leffe deadly than Baines; I judge for that too much humidite is the mother of putrefeotion, as you learn from the countries which are blown upon by a wind from Sea: For in these flesh which is kept for foode, putrefies in the space of an houre, and such ulcers as in other places are easily and quickly healed, doe there by the conflux and collection of matter become inveterate and contumacious. Therefore as when the fasons of the yeare successively fall out agreeable to their nature, and when each fason is fasonable, then either we are not fick at all, or assuredly the perfeft conftitution and health of our bodies becomes worfe and decays, when the fasons of the yeare are deprav'd and perverted in time and temper.

Now feeing that these many yeares the four fasons of the yeare have wanted their feasonable fenes, the fummer wanting his ufual heat, and the winter his cold, and all things by moisture and the dominion of the southerne windes have beene humid and languid, I thinke there is none so ignorant in naturall Philofophie and Afrologie, who will not thinke that the caufes of the malignitie and contumacie of those diseases which have so long afflicted all France, are not to bee attributed to the air and Heavens. For otherwife, whence have so many pestilent and contagious diseases tainted over so many people of every age, fex and condition? whence have we had so many venemous creatures, as Toades, Grasshoppers, Caterpillers, Spiders, Wasps, Hornets, Beetles, Snails, Vipers, Snakes, Lizards, Scorpions and Eels or Nutes, unlefe from exccutive putrefeotion which the humidity of the air, our native heat being liquid and dull, hath caus'd in us, and the whole kingdom of France? Hence also proceeds the infirmitie of our native heat, and the corruption of the blood and humors whereof we confift, which the
the rainy Southwind hath caused with its fultry heat. Wherefore in these last
years I have drawn but little blood, which hath not presently flowed the corruption
of its substance by the blacke or greenish colour, as I have diligently observed in all
such as I have bled, by the direction of Physicians, either for prevention of future, or
cure of present diseas. Whence it comes to passe that the fultry substance of our
bodies could not but be faulty both in temper and consistence: seeing that the blood
whence it is generated had drawn the seeds of corruption from the defiled aire.

Whence it fell out, that the wounds which happened with loss of substance, could
be scarce healed or united, because of the depraved nature of the blood. For to
the wounds and ulcers of these which are troubled with the Dropis, whole blood is
more cold or wholly waterish; so of Leprous persons, whose blood is
corrupt, and lastly of all such as have their bodies defpire with ill juice, or else are
cachectick, will not easily admit of cure. Yea assuredly if but the very part
which is hurt swerve from its native temper, the wound will not easily be
cured.

Therefore seeing all these things, both the putrefaction of the aire, and deprav-
ated humors of the body, and also the distemper of the affected parts conspired to-
gether to the destruction of the wounded, what marvel was it, if in these lateci-
vill wars, the wounds which were for their quantity small, for the condition of
the wounded parts but little, have caused so many and grievous accidents and
lastly death it self? Especially, seeing that the Aire which encompasseth us, tainted
with putrefaction, corrupts and defiles the wounds by inspiration and expiration,
the body and humours being already disposed, or inclined to putrefaction.

Now there came such a stinke, which is a most assured signe of putrefaction, from
these wounds when they were dressed, that such as stood by could scarce endure it,
neither could this stinke be attributed to the want of dressing, or fault of the Chi-
rurgion; for the wounds of the Princes and Nobility stank as ill as those of the
common Soldiers. And the corruption was such, that if any chanced to be undressed for one day, which sometimes happened amongst such a multitude of wounded
persons, the next day the wound would be full of worms. Besides also, which fur-
thermore argues a great putrefaction of humors, many had Abseelles in parts op-
posite to their wounds, as in the left knee, when as the right shoulder was wounded;
in the left arm, when as the right Leg was hurt, Which I remember befell the King
of Navarre, the Duke of Nevers, the Lord Benda and divers others. For all men
had nature so overcharged with abundance of vicious humors, that if it expelled
not part thereof by impollumation to the habit of the body, it certainly otherwise dif-
pofed of it amongst the inner parts of the body; for in defeting dead bodies, wee
observed that the Spleen, Liver, Lungs, and other Bowells were putrified, and
hence it was that the patients by reason of vapours sent from them to the heart were
troubled with continual feavers. But the Liver and all the venous parts being pol-
luted, and to the generation of the laudable blood hindered, they languished for want
of sufficiency. But when the Braine by vapours was dried in to sympathise with the reit, they were molested with Raving and Convulsions. Wherefore
if any thing succeedeth unprosperously in so great malignanie of wounds, the Chi-
rurgion was not to blame, for that it were a crime to fight against God and the
Aire, wherein the hidden scourges of the divine justice ly hid. Therefore, if according
to the minde of the great Hippocrates, who commands to bring all contused
wounds to suppuration, that so they may be healed, we endeavoured to cure such
medicines wounds made with Gunpowder, and therefore contused, who can right-
fully beangerly with us, if we performed it not so well, by reason of these putrefactions,
gangrenes and mortifications which proceeded from the corrupt Aire, for all that
we used not only suppuratives, but were oft times forced to use other medicines,
so long turning aside from the cure of the disease, until we had overcome the symp-
tomes which much endanger the patient and customarily happen upon such wounds,
as also upon those which are made with a sword or any other kind of weapon; As
shall plainly appeare in the following treatise, to which it now seems that we betake our selves.

CHAP.
CHAP. I.

A division of wounds drawn from the variety of the wounded parts, and the Bullets which wound.

Wounds which are made in mans body by Gunshot, whether simple or compound, are accompanied with contusion, dilaceration, distemper and swelling. I say, all these poiffele eyther the noble parts, or ignoble, the flethly, nervous or bony, some whiles with rending and tearing alunder the larger vessells, sometimes without harming them. Now these wounds are only superficicary, or clipe piece deep and passe quite through the body. But there is also another division of these wounds taken from the variety of the Bullets wherewith they are made. For some bullets are bigger, some leffe, whiles betwene both, they are usually made of Lead, yet sometimis of Steele, Iron, Brass, Tinne, scarce any of Silver, much leffe of Gold. There arises no difference from their figure; for almost all kinds of wounds of this nature are round. From these differences, the Chirurgeon must take his indications what to doe, and what medicines to apply. The first care must be, that he thinke not these horrid and maligne symptomes, which usuallly happen upon these kinds of wounds, to arise from combution, or poyson carried with the Bullet into the wounded part, and that for these reasons we, have formerly handled at large. But rather let him judge they proceed from the vchemency of the contusion, dilaceration and fracture, caufed by the Bullets too violent entry into the nervous and bony bodies. For if at any time the bullet shall only light upon the flethy parts, the wounds will be easely cured, as any other wound usually is, which is made with a contuing and round kind of weapon, as I have often found by frequent experience, whilest I have followed the warres, and performed the part of a Chirurgeon to many Noble-men and common Souldiers, according to the counfell of such Physitians as were thereoverseers of the cure.

CHAP. II.

Of the sigines of wounds made by Gunshot.

Wounds made by Gunshot are knowne by their figure, which is usually round; by their colour, as when the native colour of the part decayes, and is in stead thereof a livid, greenith, violet or other colour succeeds; by the feeling or fenfe of the stroke, when in the very instant of the receiving thereof, hee feels a heavy fccfe as if some great stone, or piece of Timber, or some such other weightything had fallen upon it; by the small quantity of blood which iffues out thereat, for when the parts are contused, within some small while after the stroke they swell up, so that they will scarce admit a Tent, whence it is that the blood is stopped, which otherwise would flow forth of the orifice of the wound; by heat, which happeneth eyther by the violentneffe of the motion, or the vehement impulsion of the aire, or the attrition of the contused parts, as the fleth and nerves.

Also you may conjecture that the wounds have bene made by Gunshot, if the bones shall be broken, and the splinters thereof by pricking the neighbouring bodies cause defluxion and inflammation. But the caufe that the Bullet makes so great a contusion is, for that it enters the body not with any points or corners, but with its round and sphericall body, which cannot penetrate but with mighty force; whence it commeth to paffe that the wound lookes blacke, and the adjacent parts livid. Hence also proceed so many grievous symptomes, as paine, Defluxion, Inflammation, Apoptumation, Convulsion, Phrenfie, Palsie, Gangreen and mortification, whence laftly death ensues. Now the wounds doe often call forth virulent and very much stinking filth, by reaon of the great contusion, and the rending and tearing of the neighbouring particles. A great aboundance of
of humors flow from the whole body, and fall downe upon the affected parts, which
the native heathe thereof being distinguished forsakes, and presently an unnatural
heat begins upon it. Neither a stagge with his horn nor a flint out of a thing can give so great a blow,
or make so large a wound, as a Leadem or Iron Bullet shot out of a Gun, as that
which going with mighty violence, pierces the body like a Thunderbolt.

Chapter III.

He wounds must be ordered at the first dressing.

Strange: here the wound must first be pulled forth.

The matter how to draw them forth.

Strange: here the wound must first be pulled forth.

Strange: here the wound must first be pulled forth.

Chapter III.

A description of fit Instruments to draw forth Bullets and other strange bodies.

Oth the magnitude and figure of Instruments fit for drawing forth of Bul-
lets and other strange bodies, are various according to the diversity of the
incident occasions. For some are toothed, others smooth, others of another
figure and bigness, of all which sorts the Chirurgion must have divers in a readiness,
that he may fit them to the bodies and wound, and not the wounds and bodies to his
Instruments.

The Delimitation of such like Instruments.

A toothed Crowe's Bill.
Of wounds made by Gunshot.

The crooked Crane-bill, with teeth like a Saw.

The straight Crane-bill being also toothed, fit for drawing forth haile-shot, pieces of armour, splinters of bones, and such things also deep within.

Another Instrument fit for drawing forth of Bullets, which may be termed, a Catch-bullet.

A. Shows the Trunke.
B. Shows the rod, or firing, which opens & shuts the joint.
C. The joint.

Another

This Ducks bill hath a large round and toothed cavity in the end, for so it more easly taketh hold of the Bullet when it lies amongst much Flesh.

The Ducks-bill.
Another Catch-bullet called a Lizard's-mouth, made for drawing out of bullets which are somewhat flattened, by striking upon a bone.

The Parrot-beak is made for drawing forth pieces of mail, thrust into the flesh, flesh, or bones, and this is the figure thereof.

A. Skews, or, crane-bills. B. The hallowed part which receives the round part noted with. C, which is opened and shut by the screw. D, D, falls, or slates, which govern the running branch.

The Swan's bill opens with a screw; you may with this dilate the wounds, and so put in a straight Crane's-bill, as pincers to pluck forth strange bodyes.

The figure of both are here express'd.

But if these strange bodys, especially bullets and bailethot, be not too deep in the wound, they may be taken forth with your Levatorie, or else by the help of these Gimblets. These Gimblets are screwed into their pipes, or canes, and enter with their screwed points into the Bullets, if that they be of Lead or Tin, and of no harder mettal, and so being fastened in them, bring them out with them.
Of wounds made by Gunshot,

The figure of the Gimblet with his pipe or cane.

Besides the Swan-bill which we lately mentioned, there are also other Instruments fit to dilate and open the wounds, therefore called Dilaters, by whose help the wound may be held open, that so the hidden bodies may be seen; for when you press together the two ends of this Instrument, the other two open and dilate themselves. You may also use them in dilating divers other parts of the body, as the Nose-thrills, fundament, and such like.

The Instruments which follow are called Seton needles, or Probes, whose use is, to draw through a flamula, so to keep the wound open, that you may the better take forth any strange body. Besides also we use the same needles, to search, or as it were to sound the deepenesse of wounds, and to finde out the Bullets. For they cannot put one to much paine because they have smooth and round ends. Also all Probes wherewith we search for Bullets, must have somewhat large, smooth and round ends. For seeing that the verges of the wound meet together presently after the hurt, if the Probes be too small or slender, they will stick in the inequality of the flesh, neither will they be able to come to the Bullet; But if they bee sharpe and pointed, they will caufe and renew the paine by pricking the flesh they melt withall, and so hinder your intention of finding the Bullet; Now you must bee furnished with these Instruments of a different length, according to the various thicknesse of the parts; for you cannot put any through the thigh but such as are of good length.

Probes for to put flamules through a wound within.

What probes fit to search their wounds.
what dressing must first be used, after the strange bodies are pluck'd out of the wound.

Hen the strange bodies are drawn out of the wound, by these means; we have formerly recited, the chiefe of the cure must be to heal the contusion, and amend the disnember of the aircrife bee hot and moist, that is, subject to purgation. This shall be done by medicines taken inwardly, applied outwardly, and put into the wound. Things to be inwardly used in dyce and Pharmacie I leave to the judgement of learned Physitians, for the particular and topick medicines, (unless from the present constitution of the aircrife, the condition of the wounded part, or from some other cause there be danger of a Gangrene) you must use suppuratives, as you usually doe in contusions, such as are oyle of Whetipes and that which we call a digestive; you must chiefly forbear suppuratives, when as the wounded part is of a nervous nature. For all nervous parts require drimmer medicines than flity, as we have formerly delivered speaking of wounds of the joynts, whereas in wounds of the joynts and nervous parts you shall use more venic Turpentine than oyle. Laurencius libertus the Kings Phyitian and Chancellour of the Univer-

fity of Montpelier, in a treatise which he wrote of wounds made with Gunflote, to bids the use of Elechariotics both actual and potential, in these wounds, if simple, for that they induce paine, inflammation, a fever, Gangrene and other deadly symptoms. Besides also an Elechar will hinder suppuration, which is to bee desired in this kind of wounds, that so the cutted flesh may be fevered from the sound, least it be drawn to purgation by contagion. Which eaily happens when an Elechar isdrawne, as a barre over it, for the excrementitious humor remains longer in the part, and the putrid vapours hindered from falling forth, are en-

creased, and carried from the latter veiles to the bigger, and so over all the body. Wherefore, when you first set purgation, letting alone suppuratives, use in the first place such things as refer purgation, as this following oynrment. R. pulvere, alum,"minire, cirellus, Piscul romanum, mollii refatun, 3i, acetis bovis quantum sufficit, bul-

l ient ommis funum fluidumart.3m, & flat medicamentum ad formam meli. This by reason of the heat and sublunency of the liquide, hath a facultie to induce and accentuate the humors, as also to call forth the native heat drawn in and dissipated by the violent and forcible entrance of the Bullet into the body; furthermore also it corrects the venenum contagion of the virulent humor. Now this medicine shall be used, diffolved in Venegar or aqua viva, and be put into the wound with tents, or pledgets. The tents which shall bee used at the first dressing must be somewhat long and thick, that by dilating the wound, they may make way for application of other remedies, otherwise you may make injection with a syringe, that to it may penetrate the more powerfully. But this described Egyptian shall be tempered according to the condition of the affected parts, for the nervous parts will be offended with it as being too acide; but it may be qualified by admixture of oyle of Turpentine and Saint John-wort. Also we may well be without this Egyptian when there is no such pestilential constitution of the aircrife, as was seen in the late Civill warres. After the use of Egyptian you shall with emollient and lenitive medicines procure the falling away of the Elechar, and such a medicine is this following oyle, being somewhat more than warme.

O2 the
Lib. II.

Of wounds made by Gunshot.

Like to other wounds, the rule of Hippocrates, which wishes every contused wound to bee preferently brought to suppuration, for so it will be least subject to a Phlegmon; and besides, all the rent and bruised flesh must putrefy, dissolve and turne to quittance, that new and good flesh may be generated in stead thereof.

Laurentiusaborbymuch comments this following medicine, of whose efficacie, as yet, I have made no triall. \textit{R. pulver. mercur. bui calcinat. 3}, \textit{adipis potosi recriss. vel buniis recriss. 3 viii. Camphora in aqua viva dissipata. 5, visce ovam.} Hereon, adding 

\textit{tambillum olei literum, ant. lini.} Experience taught him, and reason also thows, that this kind of remedy is very commendable; for the powdr of Mercury, if mixed with a grote and humecting matter, doth in a short space turne the bruised flesh into pus, without causing any great paine. For the Camphire, whether it bee hot or cold, in temper, it much conduces to that purpose, by reason of the subtiltie of the parts, whereof it consisit. For by means of this quality the medicines enter with more facility into the affected bodys, and performe their parts; besides also Campbire refists putrefaction. Some droppes into the wound 

\textit{aqua viva.} wherein they have dissolvd some calcined vitrioll. Which kind of remedy is not suppurative, but yet much resists putrefaction, so that we may use it with good successe, when the weather is hot, moyt, and loggie. But when the wound is made very nere at hand, it cannot but bee burnt by the fame of the powder; in which remedies used for burnes, will be usefull, not omitting such as are hot for contusion. But for these parts which lye next the wound, you shall not, unless at the first dressing apply stifferating and astringent things, but rather emollient and suppurative. For those things which have a refrigereating faculty, weaken the part, and hinder putrefaction. For astringets confipate the skin, which is the cause, that the putrid vapours shut up and hindered from tranfpiration and passage forth, so a gangrenie and mortification easily feaze upon the part. But if the conftitution be great and diffufe fome over the flesh, the part must be much scarified, that so the contused and concresat blood and therefore subjeft to putrefaction, may be evacuated. But for these parts, which fome what further distance from the wound encomphafe the confeacted flesh, they require refurting and ftrengthening medicines, to hinder the falling downe and fctting of the bulles in that part, fuch is this ensuing medicine. \textit{R. pul. b. armen. fanguin. Dracon. Myrrha. am. 5. fucc. folor. femperm. port. albij. 3 viii. album iiij. ovari. oxyrhodin. quantum suffit. tot livinimum. ut deect.} You may use this, and the like untill the fulpeed symptoms be past faire. Neither muft you have leffe care of binding up and rolling the part, than of your medicines; for it doth not a little conduce to the cure, to binde it fo fitly up as it may be without paine. The wound at the beginning or the cure, muft be drefled but once in 24. hours, that is, on till the wound come to perfeft suppuration. Here you must note, that these kinds of wounds are longer before they come to suppuration, than other wounds made by any other fort of weapon; both for that the bullet, as also the ayre which it violently carries before it, by much bruising the flesh, on every side, dissipates the native heat, and exhausts the spirits of the part, Which things hinder

\textbf{CHAP. VI.}

\textit{How you shall order it at the second dressing.}

\textit{R. pul. b. armen.} you shall only put into the wound some of the oyles formerly described, adding to them the yolkes of some egges and a little faflions, and use this medicine, untill the wound come to perfect suppuration. Here you must note this, that these kindes of wounds are longer before they come to suppuration, than other wounds made by any other fort of weapon; both for that the bullet, as also the ayle which it violently carries before it, by much bruising the flesh, on every side, dissipates the native heat, and exhausts the spirits of the part, Which things hinder
hinder digestion, and often cause the matter to finke, as also many other pernicious symptoms. Yet most usually put or quittance appears within three or four days, sooner and later according to the various complexion, and temperament of the patients bodies, and the condition of the ambient aere in heat and cold. Then by little and little you must come to detrovers, adding to the former medicine some Turpentine wathed in Rofe, Barly, or some other liquor like water, which may waft away the hinted thereof. If the encompassing aere be very cold, you may to good purpose add some aqua viva; for by Galens præcîpium, we must use hot medicines in winter, and leafe hot in summer. Then in the next place use detrovers, as Re: aqua decotions hordei quantum sufficit, succi plantaginis, appy, agrimon. centauri minoris, an. 3ij; bulbiant omnium simili; in fine decotions adder terebinthina veneta 3ij; melis rufar. 3ij, farin. bordei. 3ij. croci 3j. Let them be all well mixed together and make a Mundificative of an indifferent consistence. Or Re: succi elychnis, phaen. absinth. appy, an. 3ij; tereb. venet. 3j. syrups, absinth. & melis ref. an. 3ij; bulbiant omnia secundum ariem, pasten coelenter, in colonia adae pover, aletes, maflichis, tereb. Florent. far. bord. an. 3j.; suci Mundificatium ad stom bidiam. Or elle Re: succi elychnis, venet. lati in ag. ref. 3j.; aletes ref. 3j.; melis ref. 3ij.; myrrha, aletes, maflich. arsliceb. rosteus, an. 5ij; far. bord. 3ij. mifce. Make a Mundificative, which you may put into the wound with tents, but such as are neither too long, nor thick, lest they hinder the evacuation of the quittance and vapours, whereas the wounded part will be troubled with erision, paining, defluxion, inflammation, abfece, puerification, all which severally of themselves, as also by infecting the noble parts, are troublesome both to the part affected, as also to the whole body besides. Wherefore you shall put into the wound not tents, unless small ones, and of an indifferent consistence, left (as I say) you hinder the passing forth of the matter, or by their hard pressing of the part, cause pain, and do draw on malignant symptoms. But feeting tents are used both to keep open a wound so long, until all the strange bodies be taken forth, as also to carry the medicines, wherewithall they are appointed, even to the bottom of the wound. Now if the wound be famous and deep, that so the medicine cannot by that means arrive at the bottom and all the parts thereof, you must do you bulbe by injections made of the following decotion. Re: ag. bord. lib. 4. agrimon. centaur. minoris, piminsella, absinth, plantag. an. M. S. rad. arsliceb. rosteus, 5ij. suci decotions ad lib. j., in colonia expressa diffolve aletes hepatica 3ij; melis ref. 3ij.; bulbiant medicum. Inject some of this decotion, three or fours times into the wound, as often as you dress the patient; and if this shall not be sufficient to cleanse the flesh, and waft the spurious, putrid and dead flesh, you shall dissolve therein as much Egyptiacum as you shall thinke fit for the present necessity, but commonly you shall dissolve an ounce of Egyptiacum in a pint of the decotion. Verily Egyptiacum doth powerfully confume the proud flesh which lies in the capacity of the wound; besides also it works very powerfully upon fuch kind of flesh. For this purpofe, I have alfo made trial of the powder of Mercury, and burnt Alumne equally mixed together, and found them very powerfull, even almost as sublimare, or Artificene, (but that these caufe not fuch pain in their operation.) I certainly much wonder at the largeneue of the Elchar which arifes by the aperfio of these powders, Many Practitioners would have a great quantity of the injection to be left in the cavities of finous ulcers, or wounds, which thing I could never allow of. For this contained humeur caufeth an unnatural tenfive in thele parts, and taints them with superfuous myrure, whereby the regeneration of fchific is hindered; for that every ulcer as it is an ulcer, requires to be dried, in Hippocrates opinion. Many alfo offend in the too frequent use of Tents; for as they change the every houre, they touche the fides of the wound, cause pain, & renew other malignant symptoms, whereas such ulcers as caft forth more abundance of matter, I could with rather to be dried with hollow tents, like tho the I formerly decribed to be put into wounds of the Cheif. You shall alfo preffe a linnen boultter to the bottome of the wound, that so the parts themselves may be mutually confedned by that preffe and the quittance thruft forth neither will it be amiffle to let this boultter have a large hole fitted to the orifice of the wound & end of the hollow tent and pipe, that so you may apply a furnace for to receive the quittance, for fo the matter will be more speedily evacua-
evacuated and open, especially if it be bound up with an expulsive ligature, beginning at the bottom of the ulcer, and so wrapping it up to the top. All the boulsters and rowlers, which shall be applied to these kinds of wounds, shall be dipped in Oxycrate, or red wine, to so strengthen the part, and hinder defluxion. But you must have a special care, that you do not bind the wound too hard, for hence will arise pain, hindering the passage forth of the putredinous vapours and excrements, which the cutted flesh casts forth; and also feare of an Atrophie, or want of nourishment, the alimentary juices being hindered from comming to the part.

Chap. VII.

By what means strange bodies, left in at the first dressing, may be drawn forth.

In divers times happens, that certaine splinters of bones, broken and shattered at the violence of the stroke, cannot be pulled forth at the first dressing, for that they either do not yield or fall away, or else cannot be found by the formerly defcribed instruments. For which purpose this is an approved medicine to draw forth: which is left behind,

R. radic. feres Floros. panas. & copper. am. 3 ij. ars electro. rondus. manna. thuris. an. 3 j. in polilnemos redacta. incoporentur. cum melle. refar. et soro. venum. am. 3 ij. or. re. sin. pini fucea 3 ij. punicis combus. & extingu. in vino albo. radi. feres. ars electro. an. 36. thuris 5 j. jasnea. aris. 3 j. in po. lino mare redacta. incoporentur. cum melle. refar. sias medicamentum.

Chap. VIII.

Of indications to be observed in this kind of wounds.

He ulcer being clenched and purged, and all strange bodys taken forth; nature endeavours to regenerate flesh, and cicatrize it, must be helped forwards with convenient remedies, both taken inwardly, and applyed outwardly. To which things we may be easily and safely carried by indications drawn, frift from the evidence of the diseafe, then from the caufe, if as yet present it nouris the diseafe. For that which Galen says, Lib. 3. Meth. that no indication may bee taken from the primitive cause and time; must bee understood of the time past, and the cause which is absent. And then from the principal times of the diseafe, the beginning, encrease, state, and declination; for each of these four require their remedies. Others are taken from the temperament of the patient, so that no Chirurgeon neede doubt, that some medicines are fit for cholricke, other for pemegmeticke bodys. Hither referre the indication taken from the age of the patient; also it is drawn from his dyet, for no man must prescribe any flender diet to one who is always feeding, as to him who is accustomed to eat but once, or twice a day. Hence it is that a dyet consisting onely of Pandra's is more fit for Italians, than for French men for we must give some what to custome, which is as it were another nature. Vocations and dayly exercices, are referred to dyet, for other things befit husbandmen and laboures, whose fith is dense and skin hardened by much labour, than idle and delicate persons. But of all other, have diligent regard of that indication which is drawn from the strength of the patient; for we must prefently (all else being neglected) succour the fainting, or decaying strength; wherefore if it be needfull to cut off a member that is putrified, the operation must bee deferred if the strengthe of the patient bee so dejected, that hee cannot have it performed without manifest danger of his life. Also indication may be drawn from the encompassing ayre, under which also is comprehended that, which is taken from the seafon of the yeare, the state of the ayre and foyle, and the particular condition of the patient and lately by past time. Hence it is we reade in Guido, that wounds of the head are cured with
with farre more difficulty at Paris, than at Avignion, where notwithstanding the contrary, the wounds of the legges are cured with more trouble, than at Paris; The cause is, the ayre is cold and moyst at Paris, which constitution being it is hurtfull to the braine and head, it cannot, but must be offensive to the wounds of these parts.

But the heat of the ambient ayre at Avignion, attenuates and dissolves the humors, and makes them flow from above downwards. But if any object that experience contradicts this opinion of Guida, & say, that wounds of the head are more frequently deadly in hot countries, let him understand that this must not be attributed to the manifest & natural heat of the ayre, but to a certaine maligne & venemate humor,or vapour dispersed through the ayre, and rayed out of the seas, as you may easily observe in those places of France & Italy which border upon the Mediterranean Sea. An indication may also be drawne from the peculiar temper of the wounded parts, for the cutaneous parts must be drest after one, and the bony parts after another manner.

The different fente of the parts, indicates and requires the like variety of medicines, for you shall not apply to acrid medicines to the Nerves and Tendons,  

...the like reason also, for the dignity and function of the parts needful for the preservation of life, for oft times wounds of the braine, or of some other of the natural and vital parts, for this very reason that they are defined in these parts, diver the whole manner of the cure, which is usually and generally performed in wounds. Neither that without good cause, for oft times from the condition of the parts, we may certainely pronounce the whole issue of the disease; for wounds which penetrate into the ventricles of the braine, into the heart, the large vessells, the cheife, the nervous part of the midriff, the Liver, ventricile, small guts, bladder, if somewhat large are deadly, as also those which light upon a joint in a body repleate with ill humors, as we have formerly noted. Neither must you neglect that indication which is drawne from the situation of the part, and the commerce it hath with the adjacent parts, or from the figure thereof, seeing that "Galen himselfe would not have it neglected. But wee must consider in taking these five mentioned Indications, whether there bee a composition, or complication of the disease, for as there is one & that a simple diseace, so must the indication be of a compound and complicate diseace. But there is observed to be a triple composition, or complication of affects besides nature, for either a diseace is compounded with a diseace, as a wound, or a phlegmon with a fracture of a bone, or a diseace with a cause, as an ulcer with a defluction, or a diseace with a symptome, as a wound with paine, or bleeding. It sometimes comes to passe, that these three, the diseace, cause, and symptome, concur in one case or affect. In artificially handling of which, we must follow Galen counsell, who wisheth in complicate and compounded affects, that we refist the more urgent; then let us withstand the cause of the diseace, and laftly that affect, without which the rest cannot be cured. Which counsell must well be observed for in this compouer of affects, which divides the Empireck. But on the contrary the rational Phyfition hath a way prescribed in a few and these excellent words, which if hee follow in his order of cure, hee can scarce misle the patient. Symptoms truly as they are symptomes yeild no indication of curing, neither change the order of the cure; for when the diseace is heale, the symptome vanishes, as that which followes the diseace, as a shadow followes the body. But symptomes doe oftentimes urge and preffe, that persevering the whole order of the cure, we are forced to refist them in the first place; as those which would otherwise encrease the diseace. Now all the formerly mentioned indications may be drawne to two heads; the first is, to restore the part to its native temper; the other is that the blood offend not either in quantity or quality; for when these two are present, there is nothing which may hinder the repcti
cion, nor union of wounds or Vlcers.
What remains for the Chirurgeon to doe in this kind of wounds.

He Chirurgeon must first of all be skilfull and labour to allwage paine, hindred defluxions, prescribe a dyet in these fixes things we call Not naturall, forbidding the use of hot and acrid things, as also of wine, for such attetuates the humors and makes them more apt for defluxion. Therefore at the first let his dyet be tender, that so the course of the humors may bee derverted from the affed partes, for the stomache being empty and not well filled, draws from the parts about it, whereby it consequently followes, that the utmost and remotest partes are at the length evacuated; which is the cause, that such as are wounded, must keepe to spare a dyet for the next daies following. Venery is very permittious, for that it inflames the spirits and humors farre beyond other motions, whereby it happens that the humors waxing hot, are too plentifully carryed to the wounded and overheated part. The bleeding must not bee flamed prefently upon the receving of the wound, for by the more plentiful effulxe thereof the part is freed from danger of inflammation and fulneffe. Wherefore if the wound bleed not sufficiently at the first, you shall the next daie open a vein, and take blood according to the strength and plentitude of the patient; for there usuallly flowes no great store of blood from wounds of this nature; for that by the greatneffe of the contusion and vehemencie of the mooved ayre, the spirits are forced in, as also I have observed in those who have one of their limbs taken away with a Cannon bulleur. For in the time when the wound is received, there flowes no great quantity of blood, although there be large veines and arteries torn in sunder thereby. But on the 4,5,6, or some more daies after, the blood flowes in greater abundance, and with more violence, the native heate and spirits returning into the part. The belly must be so qualified, that he may have at the leaft one foole a daie, either by nature, or Art; and if by Art, then rather with a glifter than purging medicines taken by the mouth, for that the agitation of humors, chiefly in the first daies of the disease, is to be suspected, least we increase the defluxion falling downe upon the wounded part. Yet Galen writes that both the evacuations are here needfull, that is blood-letting and purging, though the Patient bee neither phethorick, nor repleat with ill humors. But the care hereof must be committed to the judgement of the learned Physition. Painey if ionyed with inflammation shalbe mitigated, by anointing the parts neere unto the wound with Vagien, or Nutrium; compofed with the juice of Plantaine, Hoiffeke, Nightshade and the like, Vagientum Discultrustis decribed by Galen dissolved with vineage, oyle of Poppyes and Rojes is of no leffe efficacy; nor Vagien, de bole, or divers other things of the same facultie, though properly no anodynes, as thofe which are not hot and moyst in the firft degree, but rather cold, but yet not so as to have any narcotick facultie. Now these forementioned things allwage paine that for they correct the hot distemper, and stay the acrid and cholericke defluxions, whose violence is more than cold. After the use of repercussives, it will be good to apply this following cataplaine. & Mica panis infusa in lacte viscitis 1 iiij, belliants parum addendo olet viculaci, & 1 iij, certes vis orum mu. iij, pulver, refer, rub, fur, chamam, & meliloti, an. 3 j, farin, fibar, & bordei, & vel. 3 j, misce, fist cataplasmum secundum artes. Also in this case you may easily make a medicine, of bread crummes boyked in Oxycrate and oyle of Rojes. The cure of Tumors, if any affociate the wound, may be found in their proper place. Natures motion, whether to suppuration, or any such thing, must full be observed, and helped by the Phystion and Chirurgeon, as the ministres or servauns thereof.
Of Bullets which remain in the body, for a long time after the wound is healed up.

Leaden Bullets lye in some parts of the body some whiles heaven, eight or more years, so that they neither hinder the agglutination of the wound, neither doth any other symptom happen thereupon, as I have divers times observed; untill at length by the strenght of nature forcing them, and their proper weightines bearing them downwards, they show themselves in some lower part, by their swelling or bunching forth, and so must be taken forth by the hand of the Chirurgion. For they say Leade hath a certaine sympathy and familiarity with mans body, chiefly the fleshly parts thereof, Wherefore it neither purifies its felfe, nor causeth the flesh to purifie; besides it hath an excellent faculty in cicatrizing old ulcers, But bullets of stone, Iron and of any other metal, are of another nature, for they cannot remaine any long time in the body without hurt; for Iron will grow ruffly, and do corrode the neighbouring bodies, and bring other maligine symptomes. Yet a Leaden bullet cannot remaine any long time in nervous, or noble parts without danger.

Chap. XI.

How to correct the constitution of the aire, so that the noble parts may be strengthen-

ed, and the whole body besides.

We because as we have formerly told you, there are some times wherein even small wounds made by Gunshot prove deadly, nor by their owne fault, but through the tault of the ayre; therefore also the Chirurgion must have this care, that he correct the ayre with all diligence, and reduce it to a certaine quality and moderation of substance, and strengthen the noble parts and whole body besides, which may be performed, by the following medicines, which are to be taken inwardly and applied outwardly. In the morning three hours before meat let the Patient take some certaine quantity, as he becre described to the heart and Liver. R aquæ rofar. 3ij. aquæ aquæ et, aceti hon. an. 3ij. coriandri preparati 26. caraphylli cist et citri an. 3ij. fruct. rub. 26. corali utrinque 26. camphori 26. ecor. 36. pupur. dis hoard. Abbatis 3ij. theriac 3 & 36. Davidis 36. pul. syn. chamæm. & meli an. 3ij. misce fiat epithema. Let it be applied warme by dipping a scarlet cloath therein. You shall frequently put odoriferous and refrigerating things to the patients nose, to strenghten the animall faculty, as R. aq. rofar. & aceti honi. an. 3ij. caryophyllorum, voca mofchat, undicamni conquisumar et Theriac aliani. 33. Let a linen ragge dipped herein, be now and then put to the patients nose, for the fame purpose he shall carry a Pomander about him, and often smell thereto. R. alini 36. rof. rub. violar. an. 3ij. baccarum myrt. juniper. santal. rub. an. 36. frav is calami. 36. aquæ rofar. quantum sitis esseque sum cum cera alba quod suffecit. fias ceraam ad comprehendantias superadilis pulvors cum pisiio calidæ & cucurrit in pumum. Or. R. ros iros iros. Flor. maior. calami aromat. lagani. benzoini rau. cypri. caraphylli an. 36. Moschus. als. pulvors cum gummi tragacanth. quod suffecit. Or. r. ledum puri 3. Benzoimi 36. frav is. calami calami. 36. iros Flor. 36. caraphylli. 3ij. major. rub. calami aromat. an. 36. imp. ditam redeg. ant. omnia, & bullians cum aqua rof. quantum suffecit, colentur, solutæque sum cum 36 fias cera. alba quantitates, frav is. liquida 36. fias ad medium cerati. & cum pisiio in pumum. addido molchi 3. Allo you may corroborate the animall faculty by application of frontalis, as also procure sleepe, and ease the paine of the head.
as, R. ag. of \(\frac{3}{2}\)iij. olei ref. & papaver an. \(\frac{3}{2}\)iij. acettoboni, \(\frac{3}{2}\)iij. trochi, de camphora, \(\frac{3}{2}\)iij. fat from tale. Linen ragggs, dipped herein may be applied to the temples of the forehead, and often renew, otherwise by their heat, dryness, and hardnesse, they will cause watching in field of sleep. Neither must you in the mean time binde the head too hard, left by intercepting and hindring the pulsation of the temporeal Artery, you encrease the paine of the head. You shall make a fire, in the patients chamber of otherdifferious woods, as juniper, Bay-tree, the prunings or cuttings of Vines, Rosemary, and Orris roots. For the same purpore, you may sprinkle the floore with sweete water, if the patient be able to undergoe such colt. As, R. major menth, radic. thyrt. pri., edami aromat. salvia, lavendula, fanicul. thymi, ictchad. star. chemem. melilot. fatureia, bacacetum lauri, & juniperi, an. M. iij. pulv. caryophyll. nucis Moschat_ an. \(\frac{3}{2}\)iij. aqua refor. & viti, an. lib. iiij. vini ali. buoni emo. & odorifici. lb. x. bulliant omnia in balneo Maria ad sumum dictum. You may also make perfumes to burne in his chamber, as thus, R. carbonk. salicis vi. ladani part. thetris masculi, Ugni cir bacea. rum luniperi, an. \(\frac{3}{2}\)iij. xyloaloes. benjoia. jyacu edams. an. Nucis mosch. santal. citrin. an. \(\frac{3}{2}\)iij. carosphill. syracu liquide, an. lib. iiij. hedante, calami aromat. an. \(\frac{3}{2}\)ij. sambum frequncash, aqua refor. solat. quad. sit. fatis. Make hereof perfumes in what fashion you please. For the rottennesse and corruption of bones we will treat of hereafter in its due place.

**Chap. XI.**

**Certaine memorable Histories.**

Ere I thinke good for the benefit of young practitioner, to illustrate by examples the formerly prescribéd Method of curing wounds made by Gunshot. The famous and most valiant Count of Mansfet, Governour of the Dutchy of Luxembourge of the order of Burgundy, comming to the ayde of the French King, was at the battel of Moncourt, where in the conflict, he received so great a wound at the joynt of the left arme with a Pittoll bullet, that the bones were shivered and broken in so many pecces, as if they had bin laid upon an Anvil and struck with an hammer: hence proceeded many maligane symptomes, as cruel & tormenting paine, inflammation, a feaverian oedema, wounds made sojatul. tumor of the whole arme even to the fingers end, and a certaine inclination to Gangrene: which to veGR^Nicolaa Latnbert, Richard Hubert the Kings Chirurgions, had made many and deepc scarifications. But when I came to vizite and dresse him, by the Kings appointment, and had observerd the great ftinch, and putrifaction, I wisied that they would ufe lotions of ty£gyptiacnm made somewhat stronger than ordinary, & disstolved in venegar & aqua vita, and do other things more largely spoken of in the chapter of a Gangrene. For the patient had also a Diarrhea or fluxe, whereby he evacuated the purulent, and thinking filth which flowed from his wound. Which how it might come to pafs we will show at large when we come to treate of the suppression of the Vrine. For this feemed very abfurd to many, because that if this purulent humor flowed out of the arme into the belly, it muft needs flow bacque into the veins, bee mixed with the blood, and by its pernicious and contagious passage through the heart and liver, cause exceeding ill symptomes, and lastly death. Indeed he often wasayed by the afcent of the filthy vapours raifed from the ulcers to the noble parts, which to reftiff, I wisied him to take a spooncfull of aqua vita with some Treacle diffolvd therein, I endeavored to repreffe the cedematous and flatulent tumor poififing all the arme with foups dipped in oxycrate, to which was put a little fat and aqua vita, these soups I flayed & held to the part with double clothes, fowed as frait as I could. Such a compreffion held the broken bones in their places, prefed their Sarrnes from the ulcers, and forced bacque the humors flowing to the part into the center of the body. If at any time I omitted this compreffion, the tumor was so increaeced, that I was in a great deale of feare, lest the native heat of the part should bee suffocated. Neither could I otherwise binde up the arme by reafon of the exceffive paine which molested the patient upon the leafl flirring of the Arme. There were also many Abfctes about
about his elbow and over all his armes besides. For the letting forth of whose matter I was forced, to make new incisions, which he endured very stoutly. At length I cured him with using a vulnerary potion, and by cleaning the ulcers, and correcting the putrefaction with *Aegypticum* dissolved in wine or honey of roses, and so poured into the ulcers, and repelling the growth of proud flesh, with the powder of burnt Aloes, drying it after the detersion with liniments. Now this I can truly affirm and profess, that and profiting, and a time of the cure, I took out above three fore splinters of bones, and those necessarily, amongst which there was one of the length of one finger; yet by Gods assistance at length he became found, in all things, but that he could not put forth, or draw in his arm.

Nor long after by the Kings command I went to see Charles Philip of Croy, Lord of Auer, the Duke of Actobos brother, not farre from Mounts a City of Henali. He kept his bed seven months by reason of a wound made by a Bullet the space of three fingers above his knee. When I came to him, he was afflicted with these symptoms, intolerable pain, a continual feaver, cold sweats, watchings, excoriating of the hippees by reason of his long lying upon them, his appetite decayed with much thirst. He often fanke down as if he had the falling sickness, had a desire to vomit; and a continual trembling or shaking so that he could not put one hand to his mouth without the assistance of the other: he was wounded frequently by reason of the vapours ascending to the noble parts. For the thigh bone was broken long ways and sideways with many splinters of bones, whereof some were plucked out and others remained sticking fast in. He besides also had an ulcer in his groin which reached to the midst of his thigh, and many other sinuous ulcers about his knee. All the muscles of his thigh and legge were swollen with a flagmaticke, cold and flatulent humor, so that almost all the native heat of those parts seemed extinct. All which things being considered, I had scarce any hope to recover him, for that I repented my coming thither. Yet at length putting some confidence in his strength, and prime of youth; I began to have better hopes. Therefore with his good liking, first of all I made two incisions, so to let forth the matter, which lying about the bone did humour the substance of the muscles. This had happy success, and drew out a great quantity of matter; then I with a bying injected much *Aegypticum* dissolved in wine, and a little *aqua vitae* into these incisions, so to restrain and amend the putrefaction, reprefse the sponge, loose and foft flesh, resolve the cedematous and flatulent tumor, affwage the paine, and stirre up and strengthen the native heat almost opposite by the abundance of excrementitious humors, so that it could scarcely assimulate any nourishment and adhere it to the parts. Then I fomented the affected part with Sage, Rosemary, Tyme, Lavender, Chamomile and Mellilot flowers and red-roe leaves boiled in white wine, and lye made of Oake-santes, adding thereto as much salt and vinegar as I judged requisite. This fomentation did accommodate and draw forth the morbid humour. Now we used them long and often, so to waste the humour more by drying up and breathing through the pallages of the skinne, more thereof than fell into the part. For this same purpose, we ordained that he should use frictions with hot linnen clothes, and that these should be made from above downwards, from below upwards, and so on every side, and somewhat long withal: For a short friction draws more humour into the part than it can resolve; I wished that other day they should lay bricks heated hot in the fire about his leg, thigh, & foale of his foot, but they were to be somewhat quenched, & sprinkled with wine and vinegar, with a small quantity of *aqua vitae*. Much warmth moisiture by this mollit heat, did sweat out of these parts, the tumour was lessened, and the native heat by little and little restored. Then I boups dipped in lye made of Oake-santes, wherein Sage, Rosemarie, Lavender, salt, and cloves, were boiled, some *aqua viva* added, were applied thereon but the rowlers were so gently, and artificially wrapped about, that he did easily endure them without any paine, and that with such happy successe, that if they were omitted but for one day, the tumour became very great. But thicker linnen boulsters were laid upon the lower cavities of the ulcers, that so to the faree or fifth might be more easily prefixed forth. But I had always a speciall care that the orifices of the ulcers should be kept open with hollow Tent or pipes put therein; and
and sometimes this following cataplasme was applied to resolve the tumor. R. Far, bord, sabar, et arabi, an. 3/5. melissa com. & serre. an. 3/i. flo, chamam, meli, & reserw, an. 3/3. putox. rad. stres, Flor, super. Mol. an. 3/i. exp. mel. simp. quantum sufficit, fist cataplasma ad formam pulpis fatis liquidae. And Emplastrum de Vigo without mercury was applied thereto, whereby the paine was much allayed, and the tumor resolved; yet were they not applied before the parts were thoroughly heated by the fomentation, frictions, and evaporation; for otherwise this Emplastrum could never have beene activated, by reason of the excessive coldness of the affected parts. Neither did we omit catamargiticks powders, fit for the taking, and drawing forth of broken bones. He used a vulnerary potion for 15 days, Also besides the particular frictions of the affected parts, I appointed other generall frictions of the whole body, which was become very leane, for by these, blood together with the spirit was drawn to the parts, and the acrid and fuliginous vapours were breathed forth. To conclude, his feaver and paines being allwaged, his appetite restored, by feeding plentifully upon good meates according to his strength, he in a short time became more lusty; and lastly by the singular mercy of God, recovered his health perfectly, but that he could not very well bend his knee. I thought good to recite these things, not to glory or bragge of the happy success of these patients, which have recovered by my means, and the favour of God, but that thus I may more fully and perfectly by familiar examples instrue young practitioners in the operations of Chirurgery.

CHAP. XIII.

An Apologie concerning Wounds made by Gunshot.

The occasion of writing this Apologie.

The chief adversaries.

All wounds made by Gunshot are consructed.

Here lately came to my hands a booke written by a certaine Phyftician, whereby he endeavours to disprove and overthrow, that which I have hitherto writ, of the cure of wounds made by Gunshot. redly if there were no other harme, but the losse of my credit ensuing thereon, I would willingly hold my peace, and stope his mouth by modest silence. But seeing the safety of so many men, lyes upon the judgement of this point, I have thought good to withstand this error, lest it, to the great destruction of mankind, spread and diffuse it felfe any further. The use (faith he) of purative medicines, have killed many who have bee but lightly wounded with adversaries, but acrid medicines, as have killed more. Neither is the teretice to be obserued in curing this sort of wounds, who bids that every contused wound be brought to suppuration. For seeing this is a new kind of wound, it requires new, and not anciently used medicines. Now the temper of the ayre changed from the natural constitution ought not to indicate change of medicines, but much leffe must thunder and lightening bee compared to the shooting of Great Ordinance. These are the chiefe heads of this his booke, which because they differ from the truth, & the things I have formerly delivered, I have thought good here to confute. First, seeing Leaden bullets which are usuall shot out of Guns are round, obtuse and weighty, they cannot wound the body without contusion and attention; Now no contusion can be cured without suppuration, nor onely according to the opinion of Hippocrates, but also of Galen and all others who have written of Physticke. Neither must we invent new remedies, for these new kindes of wounds; for the lawes of the sacred and divine Art of Physick are not obnoxious to change, nor subject to the humor of men or times, as the decrees of Kings and Emperours are. For these are established with immutable necessitie, which confiance neither consuming time, nor age, nor tyranny can pervert. Wherefore neither these who with great prale are Physicins to Kings and Princes, I meane Cewers and Botanists, thinke it lawfull for them to depart from the rule of Hippocrates. And this they not onely doe and follow in curing and doing the workes of Art, but much and highly commend, confirm and propound to be diligently obserued by all, in their books which they
they have published concerning the cure of these kinds of wounds. And yet these Physicians are such, as daily conversant in Armies and Kings hou fes have healed and daily cure as many wounded by Gunhlor as this Physitian our Amansgnith hath seen in all his life. Neither only doe these whom I have named thus cure these wounds, but almost all that drelie such kind of wounds doe the like, so that if there bee nothing which may hinder, or indicate to the contrary they presently apply suppuratives. And I wonder that hee hath not observed how his neighbour Doublet the Effericke cures desperate wounds of this nature, with no other than a suppurative medicine, composed of Lard, the yolke of an Egg, Turpenttine and a little Saffron.

In the yeare 1538. There was at Turin whilest I was Chirurgion there to the Marthall of Montreal the Kings Lieutenants General in Picteut, a certaine Chirurgion wondrous famous for curing these wounds, and yet hee used nothing else but the oyle of Whelpes, (the description whereof I at length obtained of him with much intreaty and expence) and hee used it not falding hot, as some have imagined, but powred it faire warme into their wounds, and so did mitigate their paine, and happily bring them to suppuration. Which afterwards almost all Chirurgions, after they had got the description hereof, when I first published this Work, have used and daily doe use with happy success.

But in contemning and condemning Aegyptiacum, I thinke hee hath no parta- ter; seeing there as yet hath beene found no medicine more speedy and power- ful to hinder putrification, if beginning; or correct it if present. Now these wounds often degenerate into virulent, eating, spreading, and maligne ulcers, which causeth a filting and carion-like filth, whence the part Gangrene, unleffe you withstand them with Aegyptiacum and other acrid medicines, being greatly appro- ved by the formerly named Physicians and all Chirurgions. But (sait hee) this unguent is poifonous, and therefore hath beene the death of many who have beene wounded by Gunhlor. Verily if any diligently enquire into the compofition of this ointment, and consider the nature of all and every the ingredients thereof, hee shall understand that this kind of Vungent is fo farre from poifon, that on the contrary it directly opposes and refills all poifon and putrification which may happen to a fleshy part, through occation of any wound.

It is most falle and difsonant from the doctrine of Hippocrates to affurne, that the fcaions of these werwr from the Law of nature, and the aire, not truly the fimple and elementary, but that which is defiled and polluted by the various mixture of putrid and pestilent vapours, next taken from the earth, or raised from above, make not wounds more maligne and hard to cure at some times than they are at other times. For the aire cther very hot, or cold, drawne into the body by inspiration or transpiration, generates a condition in us like its qualities. Therefore why may it not, when defiled with the putredinous vapours of bodies lying unburied after great battailes, and shipwracks of great Armades, infect with the like qualitie our bodies and wounds?

In the yeare 1562, when the civil wars concerning Religion first begun in France, at Pame a Castel lying upon the River Lat, many flaine bodies were cast into a Well, some hundred Cubits deep, so flinking and pestilent a vapour arose from hence some two moneths after, that many thousand of people dyed all over the Provence of Agenois, as if the Plague had beene amongst them, the pernicious contagion being spread twenty miles in compass which none ought to thinke frange, especially seeing the putride exhalations by the force of the winde may be driven and carried into divers and most remote regions, dispersed like the seeds of the Pestilence; whence proceeds a deadly corruption of the spirits, humors and wounds, not to be attributed to the proper malignity, or perverse cure of wounds, but to be the fault of the aire.

Therefore Francis Dalechamps in his French Chirurgery, in reckoning up these things which hinder the healing of Wlers, hath not omitted
that common cause which proceeds from the air defiled or tainted with the seeds of the pestilence. For he had learnt from his Master Hippocrates that the mutations of the chief Faculty in wounded heads was chiefly bring diseases, and he had read in Guido, that this was the chief occasion, that wounds of the head at Paris, and of the legs at Avignon, were more difficulties healed. Lastly even Baibers and such as have least skill in Chirurgery know, that wounds easily turn into a Gangrene in hot and moist constitutions of the air.

Wherefore when the wind is southerly, the Butchers will kill no more flesh than to serve them for one day. I have formerly declared the malignity of the wounds occasioned by the air in the siege of Rouen, which spared none, not the Princes of the blood, who had all things which were requisite for their health. Which caused me, made at length more skillful by experience, taud Pumetia

The similitude between Thunder and great Ordis

The power of the stars upon the Air

The smell of Gunpowder when it is fired, is hurtful, fiery and sulphurous, just like that which exhales or comes from bodies kill’d with Lightning. For mendes not only slumeth this smell, but also while Baibers leave their Dennes if touched with Lightnings. Now the cruelty of great Ordinance makes
no leffe spoyle amongst buildings, nor slaufter amongst men and beasts, than
Lightnings do, as wee have formerly shewne by examples, not onely horrid to
see, but even to heare reported, as of Mines, the Arcennall of Paris, the Citie of
Maligns. Thefe may seeme sufficient to reach, that Thunder and Lightning have
great similitude with the inflaming of great Ordinance, which notwithstanding I
would not have alie in all things. For they neither agree in subste, nor matter,
but only in the manner of violent breaking under the objects.

Now let us see and examine what manner of cure of wounds made by Gunshot
our adverarie substitutes for ours. For hee would have suppuratives used and ap-
pied, yet such as should not be hot and moist in quality, or of an Emplattique
confidence, but hot and dry things. For (faith hee) here is not the same reason as
in Mines, where the Phisition intends nothing but suppuration. But here
did he, because a corruption is present with the wound, this requires to bee ripened with
suppuratives, but the wound to be dried,

Now to answer this objection, I will referre him to Galen, who will teach him
the nature of suppuratives, from whom also hee may learn what great regard is to be
had of the caufe and more urgent order in the cure of compound diseases; then
would I willingly learn of him, whether he can heale a wound made by Gunshot,
not first bringing that which is contused to perfect maturitie. If hee affirm hee
can, I will be judged by whatsoever Practitioners hee will, to judge how obscure
these things are. Wherby you may the better understand there is nothing more
commodious then our Balsam and oyle of Whelpes to ripe wounds made by
Gunshot, if to bee that purificacion, corruption, a Gangrene of some other thing
doe not hinder. Then would hee have Oxyginate poured into these wounds to stay
their bleeding, which if it cannot so bee, hee would have a medicine apply-
ed consisting of the white of an Egg, Bole Armenicke, oyle of Roses and salt.
But I leave it to other mens judgement, whether these medicines have power to
stay bleeding if put into the wound; certainly they will make it bleed the more,
for Vinegar seeing it is of a tenuious subste and biting, it is no doubt but
that it will causie paine, defluxion and inflammation.

To which purpose I remember I put to stance bleeding, for want of another
remedie, a medicine wherein was some Vinegar, into a wound received by a Moore,
an attendant of the Earle of Roaffy, hurt with a Lance, run through his arme before
Bologne by an English horseman. But he comes againe to mee a little after, compla-
ing and crying out that all his arme burnt like fire; wherefore I was glad to dresse
him againe, and put another medicine into his wound, and layd an allringent me-
dicine upon the wound, but poured it not therein.

And then above all other remedies hee extolls his Balsame composed of Oyle
of Waxe, and Myrthe beaten together with the white of an Egg; which hee faith
is equal in operation to the natureall Balsame of Peru. For hee affirmes that this
hath a facultie to consume the excrementious humidity of wounds, and so streng-
thens the parts that no symptome afterwards troubles them. Yet hee faith, this doth
not so well heale and agglutinate these wounds, as it doth others which are cut.
Verily it is ridiculous to thinke that contused wounds can bee healed after the
same manner as simple wounds may, which onely require the uniting of the
loofed continuatie.

Therefore neither can these Balsames be fit remedies to heale wounds made by
Gunshot, seeing by reason of their dryness they hinder suppuration, which unlesse
it be procured the patient cannot be heale. Wherefore such things ought not to be
put into wounds of this nature, before they bee ripened, washed and cleansed from
their faith. Yet can I scarce conceive, where we shall be able to make out so many
Chymists which may furnish us with these things sufficiently to dresse so many
wounded soldiars as usually are in an Army, or whence the soldiars shall have
sufficient means to bear the charge thereof. Also that which hee faith is absurd,
that thefe Balsames must bee put into the wounds without Tents; and pretently
forgetting himselfe, hee faith, It will not bee amisse, if there bee a little and
flender Tent put into the wound, which may onely serve to hinder the agglu-
tination
Of wounds made by Gunshot.

... tination thereof. But how can these Balsames come to the bottomes of wounds without Tents, when as it is their chiefe propertie to carry medicines even to the innermost parts of the wounds, and alwayes keepe open a free passage for the evacuation of the quittures? But it is not necessary, that after hee hath rejected ignem tum Aepsiculum, hee nevertheless bids it apply it, from the beginning untill the conutuation come to a perfect maturation, dissolving it in a decoction of the tops of wormwood, S. thomast, the better Century and Plantaine, and so injecting it into the wound. Besides also a little after hee gives another way of using it, which is, to Boyle a quantitie of Honie of Roses in Plantaine water, carefully seiming it, until it bee boiled to the consistence of Honie, and then to add as much S. gisricum thereto, and so to make an ointment most fit to bring these wounds to suppuration. But I leave it for any skillfull in Chirurgery to judge, whether such medicines can bee suppurtivcs, or whether they bee nor rather detrives. Last of all hee writes, that these wounds must bee dressed but every fourth day. And if there bee a fracture of the bone joyned with the wound, then to moove nothing further the first dressing untill the eighth day after; then presently in another place hee faith, it will be good, and expedient, to drop ten or twelve droppes of the formerly described Balsame every day into the wound. Verily such doctrine which neither agrees with its selfe nor the truth, cannot but much puzzle and young Practitioners in Chirurgery, who is not yet verfied in the Art, or the operations thereof.

One few months agoe, I visited a patient together with some learned Physitians and skillfull Chirurgions. Now they, as it oft times happens, in way of discourse, begun to argue of the condition and quality of wounds made by Gunshot, and endeavoured to prove that they might be poysoned, by five reasons. Not truly through the occasion of the Gunpouder, for they all confessed that it was free from poyson, whether you have regard to its felfe, or to its composition; but by the Bullet, into which the poyson may see incorporade and incorporade. The first reason is, that Lead being of a rare and spongious nature, which the easynesse of melting and softeargue, is very fit to drinke and soake in what liquors soever you plesse. But methinks this conclusion is very weak; for in all mixtures made by Art, such as this is whereof we speake, there are two things to be considered, that is to say, the matter of the things which enter into the mixture, and the forme; for the matter, such bodies must bee eyther liquid, or softe or friable, and lastly such as may be broken and divided into small particles, that so they may easily in all parts concurre and bee conjoined and united. But for their forme, there ought to be a certain affinity, content and sympathy. You may perceiue this by water and oyl; for each of them though of a liquid substanse, and such as may easily bee mixed with divers other things, yet cannot they bee mixed the one with the other by reason of their antipathy of formes. For this gold and silver are so agreeing with Lead, that as oft as they are molten, Lead is mixed with them. But Brass shuns Lead as much as gold and silver fly Tinne and white Lead. If therefore Brass and Lead being melted cannot bee mixed together, though contained under the same Genus, and common nature of Metallis; how then can it be commixt with another thing distinguih'd in the whole kinde, much more in species, and forme, to wit, poyson? Their second reason is this; Hon, they say, which is more dense, solid, and leffe porous, may receive some venenous substanse and quality, as the Arrowes of the Ancients which were dipped in poyson, yettis therefore must Lead much
much more be capable thereof. I answer, that the surface of iron may be poysoned, but not the inner part or substance by mixture therewith. But here the question is of union, but not of anointing or inundation.

The third reason is thus framed; 'Though (say they) lead casts off and purges it selfe from the droffe and unpur parts, yet that is no argument, that it will not commit, or take its selfe in some strange liquor or body; 3 for thus Steele, being the most solid iron, receives the temper which hardens it by the artificiall pouring upon it or quenching it in liquors contrary thereto in their whole kind. I answer, that Steele admits it into by that quenching and tempering, none of the juices of liquors with which it is warred or quenched. For if that were necessary, it might be better and more easly performed, when the mettall is first cast, than when it is beaten into plates, or bars; which answer shall serve to confute their fourth reason where they say, that bullets may be made poysonous by the commixture of the juices of Muncks-hood, Oleander, Crowe-foote, and other such like things which in their whole substance are contrary to ours, that the wound which is made with them can not but be poysoned.

But I on the contrary affirm, that mixture is onely of these things, which may not onely be put, but also take them, and be mutually united; but how can water, or any other liquid juice so much as onely take to lead, as that which is a solid and firm body, it is so farre from being united therewith. You may give more certaine judgement hereof by experience, than by reason; wherefore let melted lead be put into the forefaid juices or the like; then when the lead is cold, weigh each of them severally, and you shall finde, that both of them tare the same weight they formerly had. Which is a most certaine argument that neither the lead hath mixed or united it selfe with the juices, nor the juices lost any part of their substance.

Their fifth reason is thus; A bullet shot out of a Gun against some hard stone grows not so hot, but that you may presently without any harme take it up in your hand. Therefore it is false, that the poyson commixt and united with the bullet can bee disipated by the fire and flash of Gunpowder. The answer to this objection is easily. For when we say, that although the Bullet may bee infected by poyson perfectly commixt with the Lead, yet all the force of the poyson would bee disipated by the fire; wee would have you thus to understand us, that we do not mean this of that fire which is made by the ponder at the discharging of the Peice, but of that by force whereof the molten head is mixed and conjoin'd with the venenate juice, so to make one of many. For this fire exercising its force upon the venenate juices hindered by the intercourse of no Medium, and that for some space of time, and not for an instant, it may if not consume, yet much weaken their strength.

If there be any, who will not bee satisfied by these reasons, let him consult, and reade Matthioli. There are (saith hee) some of these latter times wholly ignorant of things, who (if we may lay the truth) have been so madly foolish, that they said it was fit and requisite to put Treacle and Mithridate and such like Antidotes amongst Gold and Silver that was melted to make Cups, that so receiving the faculties of the Antidote they might reftit poyson. But how absurd and ridiculous their opinion is, let them judge (for it needs no closer reproofe) who have any but a little knowledge in natural things, but chiefly in Metals.

These are my reasons, these the authorities of men excelling in learning and judgement, that confirmme in my ancient and former opinion, that wounds made by Gunshot doe not partake of any venenate quality.
Wounds made by Arrows and Bolts shot out of Croffe-bowes and such like things, differ chiefly in two things, from these which are made by Gunshot. The first is, for that they are oft times without contusion, which the other never are. The other is, for that they oft times are poysioned. In both these respects, their cure is different from the other. But the cure of these wounds made by Arrows is different in itself, by reason of the variety and divers sorts of Darts or Arrows.

Of the diversities of Arrows and Darts.

Arrows and Darts are different amongst themselves both in matter and in forme or figure, in number, making, facultie or strength; In matter, for that some of them are of wood, some of Reeds, some are blunt headed, others have pile or heads of Iron, Brass, Lead, Tinne, Hornes, Glass, Bone. In figure, for that some are round, others cornered, some are sharp pointed, some barbed, with the barbs standing either to the point, or shafts, or else across, or both ways; but some are broad and cut like a Chiffel. For their bignesse, some are three foote long, some leffe. For their number, they diuer in that, because some have one head, others more. But they vari in making, for that some of them have the shaft put into the head, others the head into the shaft; some have their heads nailed to the shaft, others not, but have their heads so loofely fet on, that by gentle plucking the shaft, they leave their heads behind them, whence dangerous wounds proceeded. But they differ in force, for that some hurt by their Iron onely, others besides that, by poyson, wherewith they are infected. You may see the other various shapes here represented to you in the following Figure.
Chap. XVII.

Of the difference of the wounded parts.

The Wounded parts are either fleshly or bony; some are near the joints, others seated upon the very joints; some are principal, others serve them; some are external, others internal. Now in wounds where deadly signal appears, its fit you give an absolute judgement to that effect; least you make the Art to be scandalled by the ignorant. But it is an inhuman part, and much disgrace from Art, to leave the Iron in the wound; it is sometimes difficult to take it out, yet a charitable and artificial work. For it is much better to try a doubtfull remedy, than none at all.

Chap. XVIII.

Of drawing forth Arrowes.

You must in drawing forth Arrowes shun incisions and dilacerations of Veins and Arteries, Nerves and Tendons. For it is a shameful and bungling part to do more harme with your hand, than the French had done. Now Arrowes are drawne forth two wayes, that is, either by extraction, or impulsion. Now you must presently at the first dressing pull forth all strange bodies, which that you may more easilie and happily performe, you shall set the Patient in the same posture, as he stood when he received his wound, and he must also have his Instruments in a readinesse, chiefly that which hath a slit pipe and toothed without, into which there is put a sharpe iron style, like the Gimblets we formerly mentioned for the taking forth of Bullets; but that it hath no service at the end, but is larger and thicker, so to widen the pipe, that so widened it may fill up the hole of the Arrowes head wherein the shaft was put, and so bring it forth with it, both out of the flesh as also out of the bony parts, if so be that the end of the shaft be not broken, and left in the hole of the head. That also is a fit Instrument for this purpose, which opens the other end toothed on the outside, by pressing together of the handle. You shall finde the Iron or head that lies hid by these signes, there will be a certaine roughnesse and inequality observable on that part if you feel it up and downe with your hand; the flesh there will be bruised, livid, or blacke, and there is heavinesse and paine felt by the patient both there and in the wound.

A delineation of Instruments fit to draw forth the heads of Arrowes and Darts, which are left in the wound without their shafts.
A hooked Instrument fit for to draw forth strange bodies, as pieces of Maille, and such other things as it can catch hold of, which may also bee used in wounds made by Gunshot.

But if by chance either Arrowes, Darts or Lances, or any winged head of any other weapon, bee run through and left sticking in any part of the body, as the Thigh, with a portion of the shaft or haftie severed or pieces, or broken off; then it is fit the Chirurgion with his cutting mullets should cut off the end of the shaft or haft, and then with his other mullets plucke forth the head, as you may see by this Figure.

**Chap. XIX.**

*How Arrowes broken in a wound may be drawn forth.*

If it chance that the weapon is so broken in the wound, that it cannot bee taken hold on by the formerly mentioned Mullets, then must you draw, or pluck it out with your Crane, or Crowes bill, and other formerly described Instruments. But if the shaft be broken neare the head, so that you cannot take hold thereof with your Crane’s bill, then you shall draw it forth with your Gimblet which we described before to draw forth bullets; for if such a Gimblet can be fastened in Bullets, it may faire better take hold of wood. But if the head be barbed, as usuall, the English arrowes are, then if it may be conveniently done, it will be very fitting to thrust them thorough the parts. For if they should be drawn out the same way they went in, there would bee no small danger of breaking or tearing the Vessells and Nerves by these hooked barbes. Wherefore it is better to make a section on the other side whither the head tended, and so give it passage forth if it may bee easily done; for the wound will bee the more easily clened and consolidated. But on the the contrary, if the point tend to any bone, or have many muscles or thick fleshe against the head thereof, as it happens sometymes in the Thighes, Legges and Armes; then you must not thrust the head thorough, but rather draw it out the same way it came in, dilating the wound with fit Instruments, and by skill in Anatomic shunning the larger Nerves and Vessells. Therefore for this purpose put a hollow Dilater into the wound, and therewith take hold of both the barbes or wings of the head; and then take fast hold of the head with your Cranes-bill, and so draw them forth all three together.
Chap. XX.

What to be done when an Arrow is left stuck or sticking in a bone.

If the weapon be so deep and fastened in a bone that you cannot drive it forth on the other side, neither get it forth by any other way than that it entered in by; you must first gently move it up and down, if it stick very fast in, but have a special care that you do not break it, and to leave some fragment thereof in the bone, then take it forth with your Crowes bill, or some other fit instrument formerly described. Then press forth the blood, and suffer it to bleed somewhat largely, yet according to the strength of the Patient and nature of the wounded part. For thus the part shall be eafe of the fulness and illnest of humors, and least molested with inflammation, putrefaction and other symptoms which are customarily feared. When the weapon is drawn forth, and the wound once dressed, handle it, if simple, as you doe simple wounds; if compounded, then according to the condition and manner of the complication of the effects; Certainly the Oyle of Whelpes formerly described is very good to assuage paine. To conclude, you shall cure the rest of the Symptoms according to the method prescribed in our Treatise of wounds in general, and to that we have formerly delivered concerning wounds made by Gunshot.

Chap. XXI.

Of poisoned wounds.

If these wounds at any time prove poisoned, they have it from their primitive cause, to wit, the empoisoned Arrowses, or Darts of their enemies. You may finde it out both by the property of the paine, if that it be great and pricking, as if continually stung with Bees, for such paine usually ensues in wounds poiysoned with hot poison, as Arrowses usually are; Also you shall know it by the condition of the wounded flesh; for it will become pale and grow livid, with some signes of mortification. To conclude, there happen many and maatable symptoms upon wounds which are empoisoned, being such as happen not in the common nature of usual wounds. Therefore presently after you have pluck-ed forth the strange bodies, encompass the wound with many and deepe carbifications, apply vertiles with much flame, that the poison may be more powerfully drawne forth; to which purpose the sticking of the wound, performed by one whose mouth hath no soareness therein, but is filled with oyle, that to the poison which he sucks may not stick, nor adhere to the part, will much conduce. Lastly, it must be drawne forth by rubefying, vertificatory and cautick medicines, and assailed by ointments, cataplasmes, emplasters, and all sorts of local medicines.

The end of the Eleventh Booke.
OF CONTUSIONS AND GANGREENS.

THE TWELFTH BOOK.

CHAP. I.

Contusion, according to Galen, is a solution of Continuity in the flesh or bone, caused by the stroke of some heavy and obtuse thing, or a fall from an high. The symptoms of this disease is by Hippocrates called 

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Histopias, and Melanis, that is to say, blackness & blennisis, the Latins term it 

Sugillation.

There are divers sorts of these Suggilations or blacknesses, according as the blood is poured forth into the more inward or outward part of the body. The blood is poured forth into the body, when any (for example) falls from an high, or hath any heavy weight falls upon him, as it often happens to such as work in Mines, or are extremely racked or tortured; and sometimes by too loud and forcible exclamation. Besides also by a Bullet shot through the body, blood is poured forth into the belly, and so often evacuated by the passages of the Guts and bladder. The same may happen by the more violent and obtuse blows of a hard Truncheon, Club, Stone, and all things which may bruise and press the blood out of the vessels either by extending or breaking them. For which causes also the exterior parts are contused, or bruised sometimes with a wound, sometimes without, so that the skin being whole, and as farre as one can discerne, untouched, the blood poures it self forth into the empty spaces of the muscles, and betwixt the skinne and muscles, which affect the Ancients have termed Ecchymosis; Hippocrates calls it by a peculiar name 

Neusosis, for that in this affect the sanguine veins seeme as it were to vomit, and verily doe vomitor call forth the superfluous blood which is contained in them. From these differences of Contusions are drawne the indications of curing, as shall appeare by the ensuing discourse.

CHAP. II.

OF the generall cure of great and enormou Contusions.

He blood poured forth into the body, must bee evacuated by visible and not visible evacuation. The visible evacuation may be performed by bloodletting, Cupping, glasses, horns, scarification, hoseflitches and fit purgative medicines; if so bee the patient have not a strong and continuall feaver; The not visible evacuation is performed by refol-
Concerning Blood-letting: if any congealed blood, if any thereof be contained in the ventricle or lung, will suffer to this following potion. R. med. Gentiana. 5ij. Indigant in Oxyurate in pulsatia diffolve 5j. tinctus 5j. fiat pestis. These medicines dissolve, and cast forth by fretting and vomiting the congealed blood, if any thereof be contained in the ventricle or lungs; it will be expedient to wrap the patient presently in a sheepskin, being hot and new taken from the sheeple, and sprinkled over with a little myrrhe, creeses and salt, and so to put him presently in his bed, and then cover him so that he may sweat plentifully. The next day take away the sheepskin, and appoint the body with the following anodyne and resolving unguent. R. angust. de althea 5j. olei Lumbrias, channam, anthesi 5j. terebinth, vanelli 3j. farina sumpra, rofas. rub, pulvius, jut, molybdom, an 5ij. fiat liuo ut distiunt off. Then give this potion which is sudorificke and dissolves the congealed blood. R. Ligni guaiac 5j. radix enula camp. confolid. majoris, cres flores, flores popoli, quern, feminis cornibus, anthis, an 5ji. gyrcyns, 5j. nepeta. gentianeas, caraphyl, cardui ben, verata, an, m., aqua fort. olei 5jj. Let them bee all beaten and infusted for the space of twelve hours, then let them boyle over a gentle fire until the one half bee consumed; let the patient drink some halfe pinne of this dike in the morning, and then sweate some hourse upon it in his bed, and doe this for seven or eight dayes. If any poore man light upon such a mischance, who for want of meane cannot bee at such cost, it will be good, having wrapped him in a sheeple, to bury him up to the chin in Dung mixture with some hay or straw, and there to keep him, untill he have sweate sufficiently. I have done thus to many with very good succeffe. You shall also give the patient portions made with syrups which have power to hinder the coagulation and purfuation of the blood, such as syruple of Vinegar, or Lemons, of the juice of Citrons and such others to the quantitiue of an ounce dissolved in feabious, or Cardua water. You may also presently after the fall give this drinke, which hath power to hinder the coagulation of the blood, and strengthen the bowels.

A dissolving and sudorificke potion to dissolve congealed blood.

A drink for the same purpoe.

A powder for the same.

The distilled water of green Walnuts. Baths.
would not have the patient enter into the bath, unless he have first used general remedies, as blood-letting and purging; for otherwise there will be no small danger, lest the humors diffused by the heat of the bath, cause a new defluxion into the parts affected. Wherefore do not thou by any means attempt to use this or the like remedy, having not first had the advice of a Physicin.

CHAP. III.

How we must handle Contusions, when they are joined with a wound.

Very great Contusion forthwith requires blood-letting, or purging, or both; and these either for evacuation, or revulsion. For thus Hippocrates in a contusion of the Heele, gives a vomitory potion, the same day, or else the next day after the hecle is broken. And then if the Contusion have a wound associating it, the defluxion must be stayed at the beginning, with an ointment made of Bals: Armeniack, the whites of eggs, and yolle of rofes, and anylices, with the pouder of red rofes, Allome and maffich. At the second dressing apply a digressive made of the yolke of an egg, yolle of violet and Turpentine. This following Cataplasm shall be applied to the neare parts to help forwards suppuration.

A caution to observe.

How contus fed wounds must be cured.

CHAP. IV.

Of those Contusions which are without a wound.

If the skinne being whole and not hurt, as farre as can be discerned, the leaft which lies under it be contused, and the blood poured forth under the skin make an Ecchymos, then the patient must be governed according to Art, till the maligne symptomes, which commonly happen, be no more to be feared. Wherefore in the beginning draw blood on the oppoffite fide, both for evacuation and revulsion. The contused part shall be scarified with equal scarifications; then shall you apply cupping glafles or homes, both for evacuation of the blood which causes the tumor and Tenfion in the part, as also to ventialte and refrigerate the heat of the part, leaft it come into an Abscffe. Neither must we in the mean time omit gentle purging of the belly. The firft topicke medicines ought to be aftivatives which must lye some time after the uptake, that so the Veines, and Arteries may be as it were strained and closed up, and fo the defluxion hindred, as alfo that the part itelfe may be strengthened. This may be the forme of such a remedy, R. Aluminae succum nu. iiij. olei myritin. et nesquit. an. 3j. boli armeni. et arum. frangiu. dracon. an. 3j. mucrun curreps. gallicum. pul.ammoniaci nitri. an. 3iij. incorporeum omita addendo aceti parum, fiat medicamentum. Then you shall resolve it with a fomentation, Cataplasm, and dissolving emplasters.
Repart Contusions are dangerous even for this case, for that a Gangrene and mortification sometimes followes them, which Hippocrates teacheth to happen, when as the affected part is growne very hard and liquefied. Wherefore when the part growes livide and blakke, and the native colour thereof, by reason of the afflux of the concreate blood, is almost extingished, chiefly to ease the part of that burden, cupping glaftes and horns shal be applyed to the part it selfe being first scarificd with a Lancet, or else the following Instrument termed a Scarificator, which hath 18 little wheels sharp and cutting like a razour, which may be stratified and slacked by the pins noted by D. and P. This Instrument is to be recommended for that it performes the operation quickly and gently, for it makes 18 incifions in the space that you make one with a Lancet or knife.

A Scarificator.

Then shal you foment the part with strong Venegar wherein the roots of radifh or of Dragons, Cuckowe-pint, Salamons Scale, Auripigmentum and the like have beene boyled; for such acide things doe powerfully heat, resolve and draw the concreate blood from the inner part of the body unto the skinne, which by its settling in the part affected, prohibits the entrance of the vital spirits, the preservers of its integrity; yea also extinguisheth the native heat of the same part. Now wee must not use these things but with great discretion, lest so we draw not onely that blood which is poured forth of the vessels, but also the other which is contained in the vessels. Moreover also we must not use them, unleffe when the defluxion is stayed. For small contusions (which Galen judgeth by the softness of the contused part) it will bee sufficient to apply to difcufse them, Virgins waxe disdilled and mixed with Cummin feedes, Cloves, the roote of blacke Briony, (which hath a wonderfull faculty to difcufse all blackenesses and fuggilations) for the same purpose, you may alfo apply wormewood bruised and fo warmed in a dish and sprinkled over with a little white wine. Also fry wormewood with oyle of cammomill, branne, the powder of Cloves, and Nutmegs, adding thereunto a little aqua vitæ, then put it all in a linen cloth and apply it hot to the part. The following emplaster doth powerfully difcufse congealed blood. R. Picro nigra 3ij. Gum. Elemi. 3ij. Byracu liquida & teretinæ, cwm. an. 36. pul. sulphuris overi 3j. Liquefiant simul, fum Em- plasfum, and let be fired upon leather and so applied.
Of that strange kinds of symptome which happens upon contusions of the ribs.

He flesh contused sometimes by great violence becomes mucous and sallow, or puffed up like Vesal which the butchers blow up, the skinne remaining whole. This is seen and happens chiefly in that fleth which is about the ribs; for this being bruised either by a blow, or fall, or resumption, or any other such like causeth; if you press it with your hand, a certaine windieke goes forth thereof with a small whizzing, which may be heard, and the print of your fingers will remain as in a dome. Voileffe you quickly make fit provision against this symptome, there is gathered in that space which the flesh departs from the bones, leaves empty, a certaine purulent humor, which divers-times foules and corrupts the ribs, It will be cured, if the mucous tumor be presently prejudiced, and straightly bound with ligatures, yet so that you hinder not the breathing, when as the affection happens upon the ribs and parts of the Chest. Then apply to the part a plaister of Oxycocum or diachylon treatmen with the emplaster de melillo, also liquifying fomentaions shall be used.

The cause of such a tumor is a certaine mucous flegme, seeing that nature is so weak that it cannot well digest the nourishment, and assimilate it to the parts; but leaves something as it were half concocted. No otherwise than the conjunctive coat of the eye is sometime so lifted up and sallow by a strake, that it flutters as it were out of the sebe of the eye, leaving such filth or matter as we see those which are blest eyes to be troubled withal, because the force and natural strength of the eyes is become more weak, either by the fault of the proper distemper, or the abundance of moisture which flows thicker, as it happens in those tumors which are against nature. For flatulencies are easily raised from a watry and fetmatische humors wrought upon by weakethate, which mixed with the rest of the humor, the tumor becomes higher.

Chap. VII.
A discourse of Mumiа, or Mummie.

Eradventure it may seeme straunge what may be the caufe, why in this Treatise of curing contusions, or bruiues, I have made no mention of giving Mummiа either in bole, or potion to such as have fallen from high places, or have beene otherwise bruised, especially seeing it is so common and usual, yea the first and last medicine of almost all our practitioners at this day in such a case. But seeing I understood, and had learnt from learned Physitians, that in using remedies, the indication must always be taken from that which is contrary to the disease, how could I shew any other give Mummiа in this kind of disease, seeing we cannot as yet know what Mummiа is, or what is the nature and essence thereof? So that it cannot certainly be judged, whether it have a certaine property contrary to the nature and effects of contusions. This how it may have, I have thought good to relate somewhat at large, neither doe the Physitians who prescribe Mummiа, nor the Authors that have written of it, nor the Apothecaries that fell it, know any certainy thereof. For if you read the more ancient, Scripsiа, and Avicenа, or the modern Metchnikou and Theort, you shall finde quite different opinions. Ask the Merchants who bring it to us, ask the Apothecaries who buy it of them, to tell it to us, and you shall hear them speake diversly heercof, that in such variety of opinions, there is nothing certaine and manifest. Scripsiа and Avicenа have judged Mummiа to be nothing else but Phisphalium, now called Phisphalium is a certaine froth or foam rising from the Sea, or Sea waters, this same foam as long as it swimmes upon the water is soft and in some sort
Of Contusions and Gangreens.

Liquid; but being driven upon the shore by force of tempest, and working of the sea, and sticking in the cavelies of the rocks, it concretes into somewhat a harder substance than dried pitch, as Dioscorides faith. Belonius faith, that Mummie is only known to Egypt and Greece. Others write that it is

Another opinion of Mummie.  

Another.

liquid, but being driven upon the shore by force of tempest, and covered over in the lands in the desartes of Arabia, in which Country they lay the lands, and sometimes carried and rayed up with such force and violence of the winds, that they overthrow and suffocate such passengers as they meet withall; the heat of these dried by the land and wind they affirm to be Mummy.

Mathius following the more usual and common opinion, writes that Mummie is nothing else than a liquor flowing from the Aromaticke embalmments of dead bodies, which becomes dry and hard. For understanding whereof you must know from all manner of antiquity, that the Egyptians have beene most judicious in burying and embalming their dead; not for that end that they should become medi- 

Mummie is no wherelse and wherein it is administred, as i have tryed an hundred times, and as Tholet witnesses, he tryed in himselfe, when as hee took some thereby of the advice of a certaine Jewish Phyfitioner in Egypt, from whence it is brought; but it also infirret many troublesome symptomes, as the paine of the heart or stomacke, vomiting and think of the mouth.

I persuadeth by these reasons, doe not only my selfe prescribe any here- of to my patients, but also in consultations, endeavour what I may, that it bee not prescribed by others. It is farre better according to Galen opinion

Mummie is nauseous for contusions, and now?
Of Contusions and Gangreens.

The effects of oxycrate in Contusions.

Method. to drink some oxycrate, which by its frigidity restrains the flowing blood, and by its tenacity of substance dissolves and diffuses the congealed clots thereof. Many reasons of learned Physicians (from whom I have learned this history of Mummie) drawne from Philosophy, whereby they make it apparent, that there can be no use of this or that Mummie in contusions, or against flowing or congealed blood, I willingly omit, for that I think it not much beneficial to Chirurgeons to infert them here. Wherefore I judge it better to beginne to treat of Contusions, or Burnes.

CHAP. VIII.

Of Contusions and their differences.

Contusions whether occasioned by Gun-powder, or by scalding oil, water, some mettall or what things soever else, differ only in magnitude. These first cause paine in the part, and imprin in it an unnatural heat. Which favouring of the fire, leaves that imprcision, which the Greekes call Empyreuma. There are more or leffe signes of this imprision, according to the efficacie of the thing burning, the condition of the part burned, and ray upon the same. If the Contusion be superficialie, the skin riseth into pustles and bliflers, unleffe it be speedily prevented. If it be low or deepe in, it is covered with an Eschar or crust, the burnt flesh by the force of the fire turning into that crusty hardness. The burning force of the fire, upon whatsoever part it falls, leaves a hot dis tense in it, condenates, contracts, and thickens the skinne, whence paine proceedes; from paine there comes an attraction of humors, from the adjacent and remote parts. These humors presently turned into warith or fercous moisture, whilst they seek to paffe forth, and are hindered thereof by the skinne condenated by the action of the fire, they liie it up higher, and raye the bliflers which we fee. Hence diverse Indications are drawne, whence proceeds the variety of medicines for burnes. For some take away the Empyreuma, that is, the heathe of the fire (as we terme it) and affwage the paine; other hinder the rising of bliflers; other forme are fit, to cure the ulcer, firft to procure the falling away of the Eschar, then to clene, generate desire and cicatrize it. Remedies fit to affwage paine, and take away the fiery heate, are of two kindes, for some doe it by a cooling faculty, by which they extinguish the pretcinatural heat, and reprefle or keepe backe the blood and humors, which flow into the parts by reason of heat & paine. Others endowed with contrary faculties, are hot and attractive, as which by relaxing the skin, and opening the pores, resolve and dissipate the fercous humors, which yeild both beginning, and matter to the pustules, and fo by accident affwage the paine and heat. Refrigerating things, are cold water, the water of Plantaine, Night-shade, Henbane, Hemlocke, the juyces of cooling heares, as Purfleaine, Letteuce, Plantaine, Houflecke, Poppye, Mandrake and the like. Of these some may be compounded, as some of the forenamed juyces beaten with the white of an egg. Clay beaten and dissolved in strong Venegar, such Alome dissolved in water, with the whites of eggs beaten therein; writing inke mixed with Venegar and a little Campphire, Fungentum nutriment, and also Poppye newly made. These and the like shall be now and then renewed chiefly at the first, until the heate and paine be gone. But these same remedies must be applyed warme, for if they should be layd, or put to cold, they would cause paine, and consequentely defluxion; besides also their strengthe could not paffe, or enter into the part, or be brought into action, but so applyed they affwage paine, hinder inflammation and the rising of bliflers.
Of hot and attractive medicines to be applied to burns.

If the fire may alleviate the pain of burning.

Beaten Onions good for burns and boils.

How often in a day those must be devised.

Medicines for an Echab.

Lei. (S. simp.)

Of Contusions and Gangreens*.

ChAP. IX.

Of hot and attractive medicines to be applied to burns.

Montst the hot and attractive things which by ratisifying, drawing out, and dissolving, alleviate the pain and heat of combustions, the fire challenges the first place, especially when the burning is but small. For the very common people know and find by daily experience, that the heat of the lightly burnt part vanishes away, and the pain is alleviated, if they hold the part which is burnt some pretty white to the heat of a lighted candle, or burning coals; for the similitude of heat draws forth the fire which is internal and in the part, is a remedy against the dislike it caused and bred. It is also an easily made and approved remedy, if they presently after the burn apply to the grieved part raw Onions beaten with some salt.

Now you must note, that this medicine takes no place, if it be once gone into an ulcer, for it would increas the pain and inflammation; but if it be applied when the skin is yet whole and not excoriated, it doth no such thing, but hinders the rising of pustules and blisters. Hippocrates for this cause also utile this kind of remedy in procuring the fall of the Echab. If any endeavour to gain the use of this remedy by that principle in Physicke, which saith, that contraries are cured by contraries, and therefore affirm that Onions according to the authority of Galen, being hot in the fourth degree, are not good for combustions; let him know that Onions are indeed potentially hot, and actually moist, therefore they rarify by their hot quality, and soften the skin by their actual moisture, whereby it comes to palls that they attract, draw forth, and diffuse the imprinted heat, and so hinder the breaking forth of pustules. To conclude, the fire as we formerly noted, is a remedy against the fire. But neither are diseases always healed by their contraries (faith Galen) but sometimes by their like; although all healing proceed from the contrary, this word contrary, being more largely and strickly taken, for so also a Phlegmon is often cured by resolving medicines, which healeth it by difsipating the matter thereof. Therefore Onions are very profitable for the burnt parts, which are not yet excoriated or excoriated, but there are also many other medicines good to hinder the rising of blisters, such as new horse-dung fried in oille of wall-nuts or Roses, and applied to the parts. In like manner the leaves of Elder or Dane-woot boiled in oille of nuts, and beaten with a little salt. Also quinched lime powdered and mixed with Onguentum Rosatum. Or else the leaves of Cuckow-pint and Sage beaten together with a little salt. Also Carpenters Glue dissolved in water and anointed upon the part with a feather, is good for the same purpose. Also thick Varnish which pollifiers or sword cutlers use, but if the pain be mere vehemence, these medicines must be renewed 3 or 4 times in a day and a night, so to mitigate the bitterness of this pain. But if so be we cannot by these remedies hinder the rising of blisters, then we must preferably cut them as soon as they rise, for that the humor contayed in them, not having passage forth, acquires such acrimony that it eats the flesh which lyeth under it, and to caufeth hollow ulcers. So by the multitude of causes & increase of matter the inflammation groweth greater, not only for nine daies (as the common people prattle) but for farre longer time; also some whiles for lesse time, if the body be not either cleened with ill humors, nor phlethickly, and you have speedily restiffed the paine and heat by fit remedies. When the combustion shall be so great as to cause an Echab, the falling away must be procured by the use of emollient and humective medicines, as of greasses, oyles, butter, with a little basilicon, or the following oynment.

R. Mucgum. pum. 15.  & cydon. an. 15. gummi. trag. 3. extrahuntur cum aqua poraria. olei liliarium 15. u. cere nova q. f. fi ung. unten. molle. For ulcers and excoriations you shall apply fit remedies, which are those that are without acrimony, such as ung. ten. album camphoratum. degest. umb. ung. unten. molle, made without Venegar, or nutritum composed after this manner. R. lithargiri aur. 15.
Of Contusions and Gangrene.

451.

Lib. I2. Contusions and Gangrenes.

oil of Egges tempered in a Leaden morter, Alfio unquenched lime many times walked and mixed with ungument rofatun, or ftreth butter without falt, or some yolkes of egges hard roasted. Or, R. Butyi re- cent, fine, ale, psyllati, & colati, vieti, ereor, li in aqua plantag. vei rofar, tia, tuihi fluid ismitter lota, jji, piombi ufti, & loti, jji. Alfe centur omnis simul, fia linimentum ut decet. Or elle, R. cort. fambuci, viretis, & olei rofat, an. lib. j. bullian finitum lena igne, potea coleturn, & ade olei uoroum jji. pal, ceruf, & tuthice prepar. an. jji, cera ala quantum sufficit, fia unguent. melle fecundum artem. But the quantity of dry- ing medicines may always be encrased or diminished according as the condition of the ulcer shall seeme to require. The following remedies, are fit to allwage pain, as the mucilages of Line leedes, of the leedes of Pilium, or Fleawort, and quinces extracted in rofewater, or faire water, with the addition of a little cam- phor; and leaft that it dry too speedily, add some oyle of Roses. Alfo five or fixe yolkes of egges mixed with the mucilages of Line leede, the leede of Pilium, and quinces often renewed, is very powerfull to allwage paine, the women which attend upon the people in the Hopitall in Paris, doe happily vse this medicine against burns. R. Lard. confihit libram unam; let it be dissolved in Rosewater, then strained through a linnen cloath, then wash it foure times with the water of hen-bane or some other of that kinde, then let it be incorporated with eight yolkes of new layd egges; and fo make an oyntment. If themart be great, as usuall it is in these kinds of wounds, the ulcer or fores shall be covered over with a piece of Tiffany, leaft you hurt them, by wiping them with somewhat a courie cloath, and so alfo the matter may easily come forth, and the medicines easily enter in. Alfo you must have a care when the eyelids, lippes, fides of the fingers, necke, the armes pits, hammes, and bending of the elbow are burnt, that you suffer not the parts to touch one the other, without the interpolation of fome thing, otherwise in continuance of time they would grow and ficke together. Therefore you shall provide for this, by fit placing the parts, and putting soft linnen ragges betwixte them. But you must note, that deep combuctions, and fuch as caufe a thicker Ephet, are leffe painefull, than fuch as are but onely superficial. The truth hereof you may perceive by the example of fuch as have their limbs cut of, and feared or cauterifed with an hot Iron,or preffently after the cauterifing is performed they feel little paine. For this great combution takes away the lefse, the vembrinum of the fenfory or thing affeding the lefse, depriving the fenitive parts of their fenfe. As wee have formerly noted when we treated of wounds and paines of the Nerves. The falling away of fuch Ephetis shall be procured by fomewhate a deep scarification which may pierce even to the quicke, that fo the humors which lye under it may enjoy freer perpiration, and emollient medicines may the freer enter in, fo to foake, moyften and soften the Ephet, that it may at length fall away. The rest of the cure shall be performed by detergent and farcoticke medicines, adding to the former oyntments metalline powders, when the preffent necifitie shall feeme fo to require. But wee cannot juftly lay in what proportion and quantity each of these may be mixed, by reafon of that variety which is in the temper and coniftence of bodyes, and the stubbornie and gentleneffe of diseascs. After a burne the fcarre which remaineth is commonly rough, unequall, and ill favoured: therefore wee will tell you in our treatife of the plague how it must be smothed, and made even.

I must not here omit to tell you, that Gunpowder fet on fire doth often fo penetrate into the flesh,not ulcerating nor taking off the skinne, and fo inflinate and thoroughly fallen it fells into the flesh by its rēnuity, that it cannot be taken or drawne out thence by any remedies, no not by Phaenigmes nor Vefickatories, nor scarification, nor venofoes, nor hones, fo that the prints thereof alwayes remaine, no other- wise than the marks which the Barbarians burne in their slaves which cannot afterward be taken away or destroyed by any Art.
Of Contusions and Gangreens.

Chap. X.

Of a Gangrene and Mortification.

Eertainly the malignant symptoms which happen upon wounds, and the solutions of Continuity are many, caused either by the ignorance or negligence of the Chirurgion, or by the Patient, or such as are about him; or by the malignity and violence of the disease; but there can happen no greater than a Gangrene, as that which may cause the mortification and death of the part, and of times of the whole body, wherefore I have thought good in this place to treat of a Gangrene, first giving you the definition, then showing you the causes, signs, prognostickes, & lastly the manner of cure. Now a Gangrene is a certaine disposition, and way to the mortification of the part, which if feareth upon, dying by little and little. For when there is a perfect mortification, it is called by the Greeks Sphæclus, by the Latines Synderatio, our countrymen terming it the fire of Saint Ambony, or Saint Marcellus.

Chap. XI.

Of the general and particular causes of a Gangrene.

He most general cause of a Gangrene is, when by the dissolusion of the harmony and joynt temper of the four prime qualities, the part is made unapt to receive the faculties, the Natural, Vital, and Animal spirits, by which it is nourished, lives, feels, and moves. For a part deprived by any chance of these, as of the light, languishes and presently dies. Now the particular causes are many: and these either primitive, or antecedent. The primitive or external are combustions, caused by things either actually or potentially burning: actually as by fire, scalding oyle or water, gunpowder fired and the like. But potentially by acride medicines; as Sublimate, vitrioll, potential cauteries and other things of the same nature: for all these cause a great inflamation in the part; But Cold causeth the ambient ayre may cause great refrigerations, and also a Gangrene, which caused Hippocrates lib. de Aer. to call great refrigerations of the braine Sphæclus. Therefore the unadvised and unfit application of cold and narcoticke things, a fracture, luxation and great contusion, too strait bandages, the biting of beast, especially of such as are venomous, a puncture of the Nerves and Tendons, the wounds of the nervous parts and joynts, especially in bodies which are plethorick and replete with ill humors, great wounds whereby the vessels which carry life are much cut, whence an anuria, and lastly many other causes, which perturb that harmony of the four prime qualities which we formerly mentioned, and so inferre a Gangrene.

Chap. XII.

Of the Antecedent causes of a Gangrene.

Ow the antecedent or internall and corporall causes of a Gangrene, are plentiful and abundant defluxions of humors hot or cold, falling into any part. For seeing the faculty of the part is unapt and unable to sustaine and govern so many plenty of humors, it comes to passe that the native heate of the part is suffocated and extinct for want of transpiration. For the Arteries are hereby so shut or pent up in a strait, that they cannot perfome their motions of contraction and dilatation, by which their native heate is preferred and tempered. But then the Gangrene is chiefly uneareable when the influx of humors

...
mors first takes hold of the bones, and inflammation hath its beginning from them. For in the opinion of Galen, all these kind of affects which may befall the flesh, are all to inordinate to the bones. Neither only a Phlegmon or inflammation, but also a rottenness and corruption doth oftentimes first invade and begin at the bones; for thus you may see many who are troubled with the Leprae and French diseases, to have their skinne and flesh whole and faire to looke, on whose bones notwithstanding are corrupt and rotten, and oftentimes are much decayed in their proper substance. This mischief is caused by a venemous matter, whose occult quality we can scarce express by any other name than poasoon inwardly generated. Oftentimes also there is a certaine acrid and stinking matter generated in flesh with a maligne and old ulcer, with which if the bones chance to be moistned they become soule and at length mortified: of which this saying of Hippocrates is extant, Vices of a yeares continuance or longer, must necessarily soule the bone, and make the fascres hollow.

Whither also belongs this saying of the same party, An Erysipelas is ill in the laying bare of a bone. But this flowing venemate and gangrenous matter is sometimes hot as in pestilent Carbuncles, which in the space of four and twenty hours by caus ing an echarre, bring the part to mortification; otherwhiles cold, as we finde it divers times happens in parts which are pass'd with a Gangrene, no paine, tumor, blackness, nor any other precedent signe of a Gangrene going before. For John de Fréyfa faith, that happened to a certaine gentlemewman of Geneve under his cure.

I remember the same happened to a certaine man in Paris, who supping merrily and without any sense of paine, went to bed, and suddenly on the night time a Gangrene feazed on both his legges, caused a mortification without tumour, without inflammation; only his legges were in some places spred over with livid, blacke and greene spots, the rest of the substance retaining his native color; yet the sense of these parts was quite dead, they felt cold to the touch, and if you thrust your lancet into the skinne no blood came forth.

A Counsell of Physitians being called, they thought good to cut the skinne, and flesh lying under it, with many deepse scarifications; which when I had done, there came forth a little blacke, thick and as it were congealed blood, wherefore this remedy as also divers other, proved to no purpose, for in conclusion a blackish colour coming into his face, and the rest of his body, he dyed instantly. I leave it to the Readers judgement, whether so speedily, and suddainly cruelly a mischief could proceed from any other than a venenate matter; yet the hurt of this venenate matter is not peculiar, or by its felle.

For oftentimes the force of cold, whether of the encompassing ayre, or the too immoderate use of Narcoticke medicines, is so great, that in a few hours it takes away life from some of the members, and divers times from the whole body, as we may learn by their example, who travel in great snowes, and over mountains congealed, and horrid with frost & yce. Hence also is the extinction of the native heat and the spirits refilling in the part, and the shutting forth of that which is sent by nature to ayde or defend it. For when as the part is bound with rigid cold, and as it were frozen, they cannot get nor enter therein. Neither if they should enter into the part, can they stay long there, because they can there finde no habitation, the whole frame and government of nature being spoyleth, and the harmony of the fourte prime qualities destroyed, by the offensive dominion of predominant cold their enemy. whereby incometh to paiche, that flying back from whence they first came, they leave the part destitute and deprived of the benefit of nourishment, life, sense and motion.

A certaine Briton an Hostler in Paris, having drunke soundly after supper, call himselfe upon a bed; the cold ayre comming in at a window left open, so took hold upon one of his legges that when he waked forth of his sleepe, he could neither stand nor goe. Wherefore thinking onely that his leg was numb, they made him stand to the fire, but putting it very nigh, he burnt the sole of his foote without any sense of paine, some fingers thickneffe, for a mortification had already possess'd more than half his legge. Wherefore after he was carried to the Hospitall, the Chirurgion who...
Of Contusions and Gangreens.

who belonged thereto, endeavoured by cutting away of the mortified legge to deliver the rest of the body from imminent death, but it proved in vain, for the mortification taking hold upon the upper parts, he dyed within three days, with trouble-some belching and hicketing, raving, cold sweat, and often swooning. Verily all that same winter, the cold was so vehement that many in the Hospital of Paris lost the wings or sides of their nose-thrills, seized upon by a mortification without any putrefaction.

But you must note, that the Gangrene which is caused by cold, doth first and principally feaze upon the parts most distant from the heart, the fountain of heat, to wit, the feete and legges: as also such as are cold by nature, as grizzly parts, such as the nose and ears.

Chap. XIII.

Of the signs of a Gangrene.

He signes of a Gangrene which inflammation or phlegmon hath caused, are paine and pulsation without manifest cause, the sudden changing of the fiery and red colour into a livid or blacke, as Hippocrates theswes where hee speakes of the Gangrene of a broken heele.

I would have you here to understand the pulsifikke paine not onely to be that which is caused by the quicker motion of the Arteries, but that heavy and pricking which the contention of the unnatural heat doth produce by raising a thicke cloud of vapours from these humours which the Gangrene lets upon. The signes of a Gangrene caused by cold, are, if suddenly a sharp pricking and burning paine afflieth the part; for *penetrable frigus adarit* (i) piercing cold doth burnes if a little thrum, as if you had handled snow, presently turne into a livid colour: if in stead of the accidental heat which was in the part, presently cold and numbness shall posse it, as if it were shook with a quartain feaver. Such cold if it shall proceede so farre as to extinguish the native heat, bringeth a mortification upon the Gangrene; also oft times convullions and violent shaking of the whole body, wondrous troublesome to the braine and the fountaines of life. But you shall know Gangrenees caused by too streight bandages, by fracture, luxation, and contusion, by the hardneffe which the attraction and flowing downe of the humors hath causeth little pimples or blisters spreading or rising upon the skinne by reason of the great heat, as in a combustion; by the weight of the part occasioned through the defect of the spirits not now sustaining the burden of the member; and lastly from this, the pressing of your finger upon the part, it will leave the print thereof as in an ademagen, and also from this, that the skinne commeth from the flesh without any manifest cause.

Now you shall know Gangreens arising from a bite, puncture, amputation, or wound in plethoric and ill bodies, and in a part induced with most exquisite fence, almoft by the same signes as that which was caused by inflammation.

For by these and the like causes, there is a farre greater defluxion and attraction of the humors than is fit, when the perspiration being intercepted and the passages flopt, the native heat is opprefsed and suffocated. But this I would admonish the young Chirurgion, that when by the formentioned signes hee shall finde the Gangrene preflens, that hee doe not deferre the amputation for that hee findeth some fenee, or small motion yet refiding in the part.

For oft times the affected parts are in this case moved not by the motion
motion of the whole muscle, but only by means, that the head of the muscle is not yet taken with the Gangrene; with moving it selfe by its owne strength, also moves its proper and continued tendon and tacle though dead already; wherefore it is ill to make any delay in such cases.

C H A P. X I I I .

Of the Prognostickes in Gangreenes.

Aving given you the signes and causes to know a Gangrene; it is fit wee also give you the prognosticke. The fearceneffe and malignity thereof is to great, that unless it be most speedily withfood the part in selfe will dye, and also take hold of the neighbouring parts by the contagion of its mortification: which hath beene the caufe that a Gangrene by many hath beene termed an Epidemium. For such corruption creepes out like poyson, and like fire cases gnawes and deftroyes all the neighbouring parts, until it hath spread over the whole body. For as Hippocrates writeth, Lib. de vultur, capitus; Mortis & viventis nuda est proportio (i) There is no proportion betweene the dead and living. Whereas it is fit pretendly to separate the dead from the living, for unless that be done, the living will dye, by the contagion of the dead. In such as are at the point of death a cold sweat flowes over all their bodys; they are troubled with ravings, and watchings, belchings, and hicketing molest them; and often inflammations invade them, by reason of the vapours abundantly and continually rafed from the corruption of the humors and sife, and do carried to the bowells and principal parts, by the Veines, Nerves, and Arteries. Wherefore when you have foretold these things to the friends of the patient, then make haste to fall to your work.

C H A P. X V .

Of the generall cure of a Gangrene.

The Indications of curing Gangreenes are to be drawne from their differences, for the cure must bee diversely instituted according to the influence and magnitude. For some Gangreenes possesse the whole member, others only some portion thereof, some are deep, other some superficially only. Alfo you must have regard to the temper of the body. For soft and delicate bodyes, as of children, women, Eunuches, and idle persons, require much milder medicines, than those who by nature and custom, or vocation of life, are more strong and hardy, such as husbandmen, labouers, mariners, huntsmen, porters, and men of the like nature who live sparingly and hardly. Neither must you have respect to the body in general, but also to the parts affeted; for the filthy and mucusall parts, are different from the solid, as the Nerves and joints, or more solid, as the Periosteum. Now the hot and moyl parts, as the Privities, mouth, wombe, and fundament, are easiely and sooner taken hold of by putrifaction, wherefore we must use more speedily means to helpe them. Wherefore if the Gangrene be chiefly occasioned from an internall caufe, he must have a dyet prefcribed for the decent and fitting use of the scarce things not natural. If the body be plethoricke, or full of ill humors, you must purge, or let blood by the advice of a Physitian. Against the ascending up of vapours to the noble parts, the heart must speedily be strengthned with Treacle dissolved in Sorrell, or Cardue water, with a boll of Mithridate, the conserve of Roses & Buglosses and with Opium made for the present purpose according to Arthis following Apyzeme shall be outwardly applied to the region of the heart. R. aqua rosar. & nempharium an. 3. lili, assci siflistrii 3, cardium extratum alborum & ruborum, refar. rub. in pulvere, radix alborum, & pody, an. 3. mithrid. & theriacae, an. 3.
The cure of a Gangrene, made by its inflammation.

The description of Egyptian usages.

Aftermaths that may be used in cure of a Gangrene.
Of Contusions and Gangreens.

But these medicines must be often renewed. If the grease be so stubborn, that it will not yield to the described remedies, we must come to stronger, to wit, Causteries, after whose application, Galen bids to put upon it the juice of a Leek with salt beaten and dissolved therewith, for that this medicine hath a piercing and drying faculty, and consequently to hinder putrefaction. But if you prevail nothing with Causteries, then must you come to the last remedy and refuse, that is, the amputation of the part. For according to Hippocrates, to extreme diseases exquisitely extreme remedies are best to be applied. Yet first be certain of the mortification of the part, for it is no little or small matter to cut off a member without a cause.

Therefore I have thought it fit to set downe the signes, whereby you may know a perfect and absolute mortification.

Chap. XVII.

The signes of a perfect Necrosis or Mortification.

On shall certainly know that a Gangrene is turned into a Sphacell, or mortification, and that the part is wholly and throughly dead, if it looke of a blacke colour, and bee colder than stone to your touch; the cause of which coldness is not occasioned by the frigidity of the aire; if there bee a great softness of the part, so that if you preffe it with your finger it riseth not againe, but retaines the print of the impression. If the skinne come from the flesh lying under it, if it great and strong a smell exhale (especially in an ulcerated Sphacell) that the standers by cannot endure or suffer it; if a fumentious moisture, viscous, greene or blackish flow from thence; if the part be quite destitute of sense and motion, whether it be pulled, beaten, crushed, pricked, burnt, or cut off. Here I must admonish the young Chirurgion, that he be not deceived concerning the losse or privation of the sense of the part. For I know very many deceived as thus; the patients pricked on that part would say they felt much paine there. But that feeling is oft deceitfull, as that which proceeds rather from the strong apprehension of great paine which formerly reigned in the part, than from any facultie of feeling as yet remaining. A most cleare and manifest argument of this false and deceitful sense appeares after the amputation of the member, for a long while after they will complaine of the part which is cut away.

Verily it is a thing wondrouous strange and prodigious, and which will scarce be credited, unless by such as have seene with their eyes, and heard with their ears the patients who have many moneths after the cutting away of the Legge, grievously complained that they yet felt exceeding great paine of that Leg so cut off. Wherefore have a speciall care leaft this hinder your intended amputation; a thing pitifull, yet absolutely necessary for to preserve the life of the patient and all the rest of his body, by cutting away of that member which hath all the signes of a Sphacell and perfect mortification; for otherwise the neglected fire will in a moment spread over all the body, and take away all hope of remedy; for thus Hippocrates with other: That Sections, Visions, and Terebrations must bee performed as soon as neede requires.

Chap. XVIII.

Where Amputation must be made.

It is not sufficient to know that Amputation is necessary, but also you must learne in what place of the dead part, it must bee done, and herein the wisedome and judgement of the Chirurgion is most apparent. Art bids
to take hold of the quicke, and to cut off the member in the found flesh, but the same art with us, to preserve whole that which is found, as much as in us lies. I will shew thee by a familiar example how thou mayst carry thy felie in these difficulties. Let us suppose, that the foote is mortifed even to the ankle; here you must atten-
tively mark in what place you must cut it off. For unless you take hold of the quicke flesh in the amputation, or if you leave any putrefaction, you profit nothing by amputation, for it will creepe and spread over the rest of the body. It befits Phy-
sickeordaine for the preversation of mankind, to defend from the iron or instru-
ment and all manner of injurie, that which enjoyes life and health. Wherefore you shall cut off as little of that which is found as you possibly can; yet so that you ra-
ther cut away that which is quicke, than leave behind any thing that is perifhed, ac-
cording to the advice of Celsus. Yet oft times the commoditie of the action of the reft of the part, and as it were a certaine ornament thereof, changes this counsell. For if you take these two things into your confideration they will induce you in this propounded cace and example, to cut off the Legge some five fingers breadth under the knee. For to the patient may more fitly use the rest of his Legge and with leffe trouble, that is, he may the better goe on a wooden Legge for otherwise, if ac-
cording to the common rules of Art, you cut it of coarse to that which is perifhed, the patient will be forced with trouble to use three Legges insted of two.

An obser-

He first care must be of the patient's strength, wherefore let him be nourifh-
ed with meats of good nutriment, eafe digestion, and such as generate many spirits; as with the yolkes of Eggs, and bread tofted and dipped in Sacke or Muskedine. Then let him bee placed, as is fit, and drawing the mufcles upwards toward the found parts, let them be tied with a ftrait ligature a little above that place of the member which is to be cut off, with a strong and broad fillet like that which women usually bind up their hair with; This ligature hath a threefold ufe: the first is, that it hold the mufcles drawne up together with the skin, fo that retiring backe presently after the performance of the worke, they may cover the ends of the cunbones, and serve them in stead of boulsters or pillowes when they are healed up, and to fuffer with leffe paine the compreation in fulfeeling the reft of the body; besides alfo by this means the wounds are the sooner healed and cicatrized, for by how much more flesh or skinne is left upon the ends of the bones, by fo much they are the sooner healed and cicatrized. The fefcond is, for that it pro-
hibites the fluxe of blood by preffing and (hutting up the veines and arteries. The third is, for that it much dulls the fenfe of the part by ftupefy ing it in the animall spi-
ris by the fraithe compreation being hindered from paffing in by the Nerves; Wherefore when you have made your ligature, cut the flesh even to the bone with a fharpe and well cutting incifion knife, or with a crooked knife, such as is here ex-
prefled,
Now you must note, that there usually lies between the bones, a portion of certain muscles, which you cannot easily cut with a large incision or dismembering knife; wherefore you must carefully divide it and separate it wholly from the bone, with an instrument made neatly like a crooked incision knife. I thought good to advertise thee hereof: for if thou shouldst leave any thing besides the bone to be divided by the saw, you would put the patient to excessive pain in the performance thereof; for soft things as flesh tendons and membranes, cannot be easily cut with a saw. Therefore when you shall come to the bared bone, all the other parts being wholly cut alunder and divided, you shall nimbly divide it with a little saw about some foot or three inches long, and that as near to the found flesh as you can. And then you must smooth the front of the bone which the saw hath made rough.

The Figure of such a Saw.

Chap. XX.

How to stanch the bleeding when the member is taken off.

When you have cut off and taken away the member, let it bleed a little according to the strength of the patient, that so the rest of the part may afterwards be less obnoxious to inflammation and other symptoms; then let the Veines and Arteries be bound up as speedily and skilfully as you can; that so the course of the flowing blood may be stopped and wholly stay'd. Which may be done by taking hold of the vessels with your Crowes beake, whereof this is the figure.

The Crowes beake fit for to draw the vessels forth of the flesh wherein they lie hid, that so they may be tied or bound fast.

The ends of the vessels lying hid in the flesh, must be taken hold of & drawn with this instrument forth of the muscles whereinto they presently after the amputation withdrew themselves, as all parts are still used to withdraw themselves towards their originals. In performance of this work, you need take no great care, if you together

R 2
Of Contusions and Gangrenes.

with the vesseis comprehend some portion of the neighbouring parts, as of the flesh, for hereof will ensue no harme, but the vesseis will be consoillated with the more ease, than if they being bloodlesse parts should grow together by themselves. To conclude, when you have to drawne them forth, binde them with a strong double thred.

Chap. XXI.

How after the blood is stanched, you must dress the wounded member.

Hen you have tyed the Vesseis, loose you Ligature which you made above the place of amputation, then draw together the lippes of the wound with foure flitches made acroffe, having taken good hold of the flesh, for thus you shall draw over the bones that part of the skynne and cut muscles drawn upwardes before the amputation, and cover them as clofe as you can, that so the syre may the leffe come at them, and that so the wound may bee the more speedily agglutinated. But when wee say, draw together the lippes of the wound with foure fitches, you must not undcrstand it, as that you must endeavour, to draw them clofe as to touch each other, for that is impossible for the fitches would sooner breake out, and so the part would lye bare. Wherefore it will be sufficient to draw them indifferent clofe together, that so you may suffer the skynne and flesh thereunder to enjoy its former liberty which it poffefed before the drawing up, and so in fine by nature's assistence, the wound may be the more easily agglutinated.

Chap. XXII.

How you must stoppe the bleeding, if any of the bound up vesseis chance to get loose.

He busines being performed as we said, if peradventure it happen that any bandage of any of the vesseis be unloosed, then must you againe binde the member with that kinde of Ligature which you did before the amputation thereof. Or else, which is better, more easilly and leffe painefull, let your servaunt taking hold of the member with both his hands, prefing his fingers strait, floppe the passage of the loosed vesseil, for so hee may flanch the bleeding. Then let the worke-mafter take a needle some foure fingers long, square, and having sharpe edges, drawing after it three or foure doubled strong thred. With this let him binde the vesseil after the following manner. Let him thrust this needle on the outsid of the flesh, some halfe fingers breadth from the loosed vesseil untill he come to the end thereof, then let him put it about it, and bring it backe againe, but so that there be no more than the space of a fingers breadth between the going in, and coming forth of the needle. In this space let him put a linnen ragge three or foure times doubled, and thereupon bind some what firstrate the two ends of the thred together. For lo he shall hinder the knot from hurting the flesh which lyes under it in the bindings, and also add strengthe thereto. For to the bound up orifice of the vesseil will in short space be agglutinated to the adjoining flesh, and that so firmly, that therethath never beene seene, any one drop of blood to have flowed from a vesseil so bound up. But if the blood which flowes forth procede from any small vesseil, you must not use this future and ligature, nor make any such great matter thereof; for it will quickly be flanchted by the only application of Astringents presently to be mentioned.
How to performe the residue of the cure of the amputated member.

Ow must we shew what medicines are fiting to be applied after the amputation of a member; which are Emplasticks, as thefe which exee- 
dingly conduc to greene wounds. As R. boli arm. 3ij. farin. vol. 3ij. 

powder, reflex, an. 3ij. pulvis fentor omnia subtiliff. & simul mixtis fat pulvis; 
herewith let the wound bee strethed, and lay thereupon dry Lint; but let the fol- 
lowing repercutive or defensive be applyed to the member.

bust, an. 3ij. in polinium redigantur omnia, & bene agitentur, addendo olei rofmar. & 
myr- 

tisall. fat defenfivum ad forum mellis. This ointment must bee applyed upon 
toopes dipped in Oxycrate, and that fo that it may not only cover the cut mem-
ber, but also be spread further and cover the neighbouring parts; as when the Legge 
is cut off, it must bee laid upon the joynt, and spread higher than the knee, some 
foure fingers upon the thigh; for it hath not onely a repercutive facultie, but it 
also strengthens the part,inders defluxion by tempering the blood, alwaging paine, 
and hindring inflammation. It will also be good to moisten your double clothes and 
bandages in Oxycrate; then must you place the member in an indifferent posture 
upon a pillow stuffed with oaten bukes or chaffe, Stagges haire, or wheate bran- 
nes. It must not be stirred after the firft dreifing (unlesse great neceffity urge) for foure 
dayes in winter, but somewhat sooner in summer. For the ligatures wherewith the 
veffells are bound, they must not be loofed, or otherwife taken away, before the 
mouthes of the veffells are covered with their glue or fleft, left by too much hafe 
you caufe a new flux of blood. This agglutination will be performed by applying 
refrigerating, astringent, and emplastick medicines, fuch as this following 
powder.

R. boli arm. farin. hard. pick. ref. gypfi, an. 3ij. Aloes, nucum cap. cort. granat. an. 3ij. 
incorportant omnia simul fat pulvis subtiliss. herewith let the whole ulcer be strethed 
over for three or foure dayes space, which being ended, let onely the feates of the 
veffells be poudred therewith, and that for eight or ten dayes, fo that wee ncede no 
further doubt of the agglutination of the veffells. In the means space let the dig-c-
itive be applyed to the rest of the Vefer until it bee come to suppuracion; for then 
you fhall give over your digeftive, and betake you to deterlivc and mundane medicines: As

R. terebinth. cen. loca in aqua vife 3ij. melis ref. celarizijii, fuci plantag. app. 
centaur, minori, an. 3ij. buulant omnia simul ufeque ad confunptionem succorum: an-
ferantur ab igni, addendo farina fab. & hard. an. 3ij. theriac. Gal. 3ij. Alot. myrrhe, orfisloch. 
an. 3ij. cressi 3ij. fat mundificatrum.

But feeing the cafe stands fo that the Patients imagine they have their mem-
bers ye. entire, and yet doe complain thereof (which I imagine to come to paffe, for 
that the cut nerves retirre themselves towards their original, and thereby caufe a 
paine like to convulsions; for as Galen writes in his booke, De matu musculorum.
That contraction is the true and proper action of a nerve and muscule: and againe, ex-
tension is not fo much an action as a motion;) now wee muft inendeavour to give 
remedy to this symptom. Which may be done by anointing the spine of the 
backe and all the affeAed part with the following Liniment, which is very 
powtile against Convulsions, the Pallie, nummecfe, and all cold affeAes of the 
nervous bodies.

R. salvii champtis, meli. can. verum, ratio mar. menth. rite, lavendula, an. m.-f.or. cham. med. 
melis, summum, aneth. & hyberic, an. p. t. baccarum lauri & junjpers an. 3ij. radicis pyr. 
pyreth. 3ij. majis. effa odorat. an. 3ij. terebinth. venet. I. olei hum. an. 3ij. olei vert. 

R 3
Of Contusions and Gangrene.

Chap. XXIII.

What just occasion moved the Author to devise this new form of remedy, to stanch the blood after the amputation of a member, and to forsake the common way used almost by all Chirurgions, which is by application of actual cauteries.

Erily I confesse, I formerly have used to stanch the bleeding of members after amputation, after another manner than that I have a little before mentioned. Whereof I am ashamed, and grieved; But what should I doe? I have observed many masters whose method I intended to follow, always to use the like; who thought themselves singularly well appointed to stanch a flux of blood, when they were furnished with various store of hot iron and cautifick medicines, which they would use to the divided part, now one, then another, as they themselves thought meete. Which thing cannot be spoken, or but thought upon without great horror, much leffe acted. For this kind of remedy could not but bring great and tormenting paine to the patient, seeing such fresh wounds made in the quicke and sound flesh are endued with exquifite fens, and oft times death it selfe. And verily of fuch as were burnt, the third part finde, and that with much ado, for that combatt wounds dificultly come to cicatrization; for by this burning are caused cruel paines, whence a Fever, Convulsion, and oft times other accidents worse than thefe. Add to this, that when the efechar fell away, oft times a new haemorrhage ensued, for stanching whereof they were forced to use other cautifick and burning Instruments. Neither did these good men know any other course; fo by this repetition there was great losse and waft made of the fleshy and nervous fubftance of the part. Through which occasion the bones were laid bare, whence many were out of hope of cicatrization, being forced for the remainder of their wretched life to carry about an ulcer upon that part, which was dimembered; which also took away the opportunity of fitting or putting too of an artificiall legge or arm in stead of that which was taken off.

Wherefore I muft earnestly entreat all Chirurgions, that leaving this old, and too cruel way of healing, they would embrace this new, which I think was taught.
taught mee by the speciall favour of the sacred Deities, for I learnt it not of my masters, nor of any other; neither have I at any time found it used by any. Only I have read in Galen, that there was no speedier remedy for staunching of blood, than to bind the vessels through which it flowed towards their roots, to wit, the Liver and Heart.

This precept of Galen, of binding and flowing the Veines and Arteries in the new wounds, when as I thought it might be drawne to thefe which are made by the amputation of members, I attempted it in many; yet so that at first in my budding practise thereof, I always had my cauteries and hot Irons in a readiness, that if any thing happened otherwise then I expected in this my new worke, I might fetch succ. from the ancient pradice, untill at length confirmed by the happy experience of almost an infinite number of particulars, I did eternally advise to all hot Irons and cauteries which were commonly used in this worke. And I think it fit that Chirurgions doe the like. For antiquity and custome in such things as are performed by Arr, ought not to have any way, authority or place contrary to reason, as they oft times have in civill aflaires, wherefore let no man lay unto us, that the Ancients have alway done thus.

Chap. XXV.

The practice of the former precepts is declared, together with a memorable history of a certaine soldier, whose arme was taken off at the Elbow.

Thinke it fit to confirm by an example the prescribed method of curing a Gangrene and Mortification. Whilst I was Chirurgion to the Marshall of Montjohan at Turin, a certaine common soldiuer received a wound on his wreft with a musket bullet, by which the bones and tendons being much broken, and the nervous bodies cruelly torne, there followed a Gangrene, & at length a mortification even to the Elbow; besides also an inflammatioon leaned upon the middle part of his Cheef, and there was as it were a certaine disposition to a Gangrene, whereby it followed that he was painefully and dangerously troubled with beelings, hickeerings, watchings, unequenesse and frequent woundings, which occaionced many Chirurgions to leave him as desperate. But it so fell out, that I orcome by his friends intreaty, undertooke the cure of this wretched person, destitute of all humane helpe. Wherefore knowing the mortification by its signes, I cut off the arme by the elbow as speedily as I could, making first the ligature, whereof I made mention; I say I took it off not with a faw, but only with an incision knife, cuttting in funder the ligaments which held the bones together, becaufe the sphacell was not paffed the joint of the Elbow. Neither ought this ficion to be, accented strange, which is made in a joynt, for Hippocrates much commendeth it, and faith that it is easily healed, and that there is nothing to be feared therein besides wounding, by reason of the paine caused by cutting the common tendons and ligaments. But such incision being made, the former Ligature could not hinder, but much blood must flow from thence, by reason of the large veffels that run that way. Wherefore I let the blood to flow plentifully so to disburden the part, and so afterwards to free it from the danger and feare of inflamation and a Gangrene; then precipitately I stanch the blood with an hot Iron, for as yet I knew no other course. Then gently loosing the Ligature I sawnt that part of the brawn of the Arme which was Gangrenated, with many and deep incisions, swelling and not touching the inner part, by reason of the multitude of the large veffels and Nerves which runne that way; then I presently aplyed a cautery to some of the incisions, both to stanch the bleeding, and draw forth the virulent Janes which
which remained in the part. And then I affailed and overcame the spreading putrefaction by putting and applying the formerly prescribed medicines; I used all sorts of restrictive medicines, to stay the inflammation of the Chefs; I also applied Epi-

theme's to the region of the heart, and gave him cordial potions and boles, neither did I desist from using them until such time as his belching, hickering and wound-
ings had left him. Whilst I more attentively intended these things, another mischeive affails my patient, to wit, Convulsions, and that not through any fault of him or me, but by the naughtiness of the place wherein he lay, which was in a Barne every where full of chimneys and open on every side, and then also it was in the midst of winter raging with frost and snow and all sorts of cold; neither had he any fire or other thing necessary for preservation of life, to leff en these injuries of the Aire and place; Now his joints were contracted, his teeth set, and his mouth and face were drawn away, when as I pitying his case made him to bee carried into the neighbouring Stable which smok'd with much horse dung, and bringing in fire in two chafendishes, I prefently annointed his necke and all the spicof his backe, shunning the parts of the Chefs, with limiments formerly decribed for con-
vulsions: then straight way I wrapped him in a warme linnen cloth, and buried him even to the necke in hot dung, putting a little fresh straw about him; when he had layed there some three days, having at length a gentle blowing or flux of his belly, and plentiful sweate, he began by little and little to open his mouth and teeth which before were set and close shut. Having got by this means some opportunitie better to doe my businesse, I opened his mouth as much as I pleased, by putting this following Instrument betweene his Teeth.

A Dilater made for to open the mouth and Teeth by the means of a

screw in the end thereof.

Now drawing out the Instrument I kept his mouth open by putting in a willow flicke on each side thereof, that so I might the more easily feede him with meats boone made, as with Cowes milke and rare eggs, untill hee had recovered power to eate, the convulsion having left him. Hee by this means freed from the Convulsion, I then againe begun the cure of his arm, and with an actuall cautery feare the end of the bone, so to dry up the perpetuall afflux of corrupt matter.

It is not altogether unworthy of your knowledge, that hee said, how that hee was wondrously delighted by the application of such actual cauteries, a certaine tickling running the whole length of the arm by reason of the gentle diffusion of the heat by applying the cauticke; which same thing I have oberved in many others, especially in such as lay upon the like occasion in the Hospitall of Paris. After this cautering there fell away many and large fcalles of the bone, the freer appulse of the aire than was fit making much thereto; besides when
when there was place for fomentation, with the decoction of red Rose leaves, Wormwood, Sage, Bay leaves, flowers of Chamomile, Melilote, Dill; I so comforted the part that I also at the same time by the same means drew and took away the virulent Scuries, which firmly adhered to the flesh and bones.

Lastly, it came to passe, that by Gods assistance, these means I used, and my careful diligence, heartlength recovered. Wherefore I would admonish the young Chirurgion, that he never account any to desperate, as to give him for lost, content to have let him goe with prophesicks; for as an ancient Doctor writes; That as in Nature, so in diseases there are also Monsters.

The end of the Twelfth Booke.
OF VLECRS,
FISTULAS, AND
Hæmorrhoides.

THE THIRTEENTH BOOKE.

CHAP. I.

Of the nature, causes, and differences of Vlers.

Having already handled and treated of the nature, differences, causes, signs and cure of fresh and blood wounds, reason 6 order seeme to require that we now speake of Vlers taking our beginning from the ambiguity of the name. For according to Hippocrates, the name of Vler most generally taken may signify all or any solution of continuity, in which sense it is read, that all paine is an Vler. Generally, for a wound and Vler properly so called, as appears by his Booke, de Vleribus. Properly, as when hee saith, it is a signe of death when an Vler is dried up through an Atrophia, or defect of nourishment. Wee have here determined to speake of an Vler in this last and proper signification. And what an Vler properly is.

The differences acceptance of an Vler.

Causes. 3. 4. 5. 6.

When an Vler properly is.

What an Vler properly is.

The causes of Vlers.

1. Internal.

2. External.

The internal causes.

The external causes.

The external causes.
## A Table of the differences of Ulcers.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper which are usually drawn from three things so wise</td>
<td>Equality or inequality, which consists of:</td>
</tr>
<tr>
<td>Quantity of that which according to their</td>
<td>Round or circular.</td>
</tr>
<tr>
<td>Length, whence an Ulcer is long, short, in different.</td>
<td></td>
</tr>
<tr>
<td>Breadth, whence an Ulcer is broad, narrow indifferent.</td>
<td></td>
</tr>
<tr>
<td>Profundity, whence an Ulcer is deep, superficial, indifferent.</td>
<td></td>
</tr>
<tr>
<td>From the time, whence an Ulcer is termed new, old, of short or long cure and duration.</td>
<td></td>
</tr>
<tr>
<td>From their appearance, whence one is called an apparent Ulcer, another a hidden and occult Ulcer.</td>
<td></td>
</tr>
<tr>
<td>From their manner of generation, as if it be made by a heavy pressing, cutting, prickling or corroding thing, whence an acute, severe and mixt Ulcer.</td>
<td></td>
</tr>
<tr>
<td>From their site, whence an Ulcer is before, behind, above, below, in the head, tail, or belly of a Muskel.</td>
<td></td>
</tr>
<tr>
<td>From that part it arises upon, whence an Ulcer in the flesh and skin, or feeding upon the graftiles or bones, such as the bone of the shin, the palate of the mouth, and ears.</td>
<td></td>
</tr>
<tr>
<td>From other common accidents, whence a Telegraphian Ulcer; that is, such an Ulcer as Telegraph had. A Chiromat, which needs the hand and art of Chiron. A Canceous Ulcer which resembles a Cancer.</td>
<td></td>
</tr>
<tr>
<td>[\text{Or common and accidental, these are drawn, either} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{It simple and solitary, without complication of any other effect against nature, and this varies in differences, for one} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{Or common and accidental, these are drawn, either} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{It compound and many various ways complicated, as} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{With the cause, whence an Ulcer} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{With the diseas, whence an Ulcer is} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{Or what is occasioned, or any other discomfort, whence an Ulcer is} ]</td>
<td></td>
</tr>
<tr>
<td>[\text{Swelling or Tumor, whence an Ulcer is} ]</td>
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<tr>
<td>[\text{Purulent, Ulcer.} ]</td>
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<td></td>
</tr>
<tr>
<td>[\text{Purulent, Ulcer.} ]</td>
<td></td>
</tr>
</tbody>
</table>

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**Note:** The text contains a table that lists various characteristics and descriptions of ulcers. Each row in the table provides a specific feature or condition related to ulcers, such as their circular, oblique, or triangular nature, their length, breadth, and depth, as well as their appearance and generation. The table concludes with a note about ulcers as simple or compound, and various ways they are complicated, including their cause and symptom, disease and symptom, and examples where ulcers may be taken from the cause and disease, and symptom, that they have formerly suffered.
Here are various signs of Ulcers according to their differences. For it is the signe of a putrid Ulcer, if it exhale a noyse, grievous, stinking and carion-like vapour, together with filthy matter. An eating Ulcer is knowne by the hollowness and wearing away of the part wherein it resides, together with the adjoining parts. A forbid Ulcer may be knowne by the greathesse and vividity of the excrements it sends forth, and by the loose and fpongy softnesse, or the crufted inequality of the flesh which grows over it. A cavernous Ulcer, by the greathesse of the orifice, and largenesse and deepenesse of the windings within. A futility Ulcer, if to the last mentioned signes there accrent a callous hardnesse of the lips or sides of the Ulcer. A cancerous Ulcer is horrible to behold with the lips turned backe, hard and fowlne, flowing with virulent and stinking corruption, and sometimes also with bloody matter, together with the swelling and lifting up of the adjacent veins. An untemperate, or as they term it, ill affected Ulcer is such as is nourisht by some great distemper whether hot or cold, moist or dry, or compounded of these. An ill natured or maligne Ulcer is knowne by the difficulty of curing and rebellious contumacy to remedies appointed according to art and reason. Wee know a catarrhous Ulcer, if the matter which feeds it flow to it from some varices thereunto adjoyning, or dilated, swollne and broken veins, or from some entraile or from the whole body being ill affected. An Apotomous Ulcer is perceived by the presence of any tumor against nature, whose kind may be found out by sight and handling. Telephian Ulcers, are such as affected Telephus, and Chimnian (in whole cure Chimnian excelled) are Ulcers which may be knowne by their magnitude not much putride, and consequently not sending forth any ill smell, not eating, not tormenting with paine, but having their lips fowlne and hard, and therefore ill to bee healed. For although they may bee sometimes cicatrized, yet it being but flender may eafily bee broken, and the Ulcer renewed. They are almoft like an ulcerated Cancer, but that they are accompanied with swelling in the adjacent parts, they are also worfe then the which are termed Canceres, that is, ill natured or maligne; whence it is that Fernelius thought they had a hidden caufe of malignitie, besides the common default of the humour, and that such as can scarce bee driven away, such commonly are left after the plague. Wherefore Galen thinkes such to bee malignes as will not suppurate or yeild any quittance.

Chap. III.
Of the prognosticks of Ulcers.

The bone must necessarily fcarill, and hollow scarres be left by maligne Ulcers of a yeares continuance or longer, and rebellious to medicines fely applied. The bone must fcarill by reason of the continual afflux, and wearing by the acrimony of the humour, which losseth the compoſite and glue by which the parts thereof are joynted together. But the scars must become hollow, for that the bone (whence all the flesh takes its first originall) or some portion thereof, being taken from under the flesh, as the foundation thereof, to much of the bulk of the flesh must necessarily finke downe, as the magnitude of the portion of the wafled bone comes unto.

You may know that death is at hand, when the Ulcers that arife in or before diætes, are fuddenlie either livid or dryed, or pale and withtered. For such drincke theweft the defect of nature, which is not able to fend the familiar and accustomed nutriment to the part ulcerated. But the livid or pale colour is not onely an argument
ment of the overabundance of choler and melancholy, but also of the extinction of
the native heat. In Ulcers where tumors appear, the patient suffers no convulsions,
neither are frantick for the tumor being in the habit of the body poiffessed
with an Ulcer, argues that the nervous parts and their original are free from the nox-
ious humors. But these tumors suddenly vanishing and without manifest cause, as
without application of a efficuing medicine, or bleeding, those who have them on their
backs have convulsions and disquietness, for that the spine of the back is al-
most wholly nervous; but such as have them on their fore parts, become eyther
frantick, or have a sharp paine of their side, or pleurisie, or else a dysestiny if
the tumors be reddish, for the forepart of the body is replenished and overspread
with many and large vellums, into whose passages the morbidlike matter being tran-
lated, is presently carried to these parts which are the seats of such diseases.

Soft and loose tumors in Ulcers are good, for they show a mildness and gentle-
ness of the humors, but crude and hard swellings are naught; for all digestion in
some measure refembles elixirion. Ulcers which are smooth and thinning are ill, for
they show that there resides an humour maligne by its acrimony, which frees al-
ders of the hairs, and depraves the natural constitution of the pores of the
skin, whence it is that such as are troubled with Quattaine agues, the
Leprofe and others, have their hair fall off.

A livid flesh is ill in Ulcers which cause a rottenneffe or corruption of the bones
lying under the flesh; for it is an argument of the dying heat and corruption of the
bone, whence the flesh hath its original and integrity.

These Ulcers which happen by occasion of any disease, as a Dropsey, are hard to be
cured; as also those whereinto a varix or swelling vellum continually casts in matter,
which a present disemper foment; which have swelling, hard and callous lips;
and such as are circular or round. An Hyperacrcos, or fleshly excrecence usually
happens to Ulcers not diligently mundified; and if they passe the arms or Legs
they cause a Phlegmon or some other tumor in the groins, chiefly if the body be
full of ill humors, as Avicenna hath noted. For these parts by reason of their rarity and
weakenesse are fit and subject to defluxions. Alhazan writes that for nine causes
Ulcers are difficultly replenished with flesh and cicatrized. The first for want of
blood, in a bloodless body; the second by reason of ill humors and the impurity of the
blood; the third by the unit application of unconfient medicines; the fourth
by reason of the fieryness of the Ulcer; the fifth by the putrification of the soft
and carionlike flesh engauffing the Ulcer; the sixth when they take their origi-
nall from a common cause which every where rages with fury, such as are those
which are left by the pestilence; the seventh by reason of the callous hardneffe of
the lips of the Ulcer. The eighth when the heavens and air are of such condi-
tion as minions fuel to the continuance of the Ulcer, as at Saragoza in Aragon; the
ninth when the bones which lie under it are waifted by rottenneffe.

An Ulcer that casts forth white, smooth, equal quittance, and little or no flinking, is
cally healed; for it argues the victory of the native heat, and the integrity of the
solid parts. We term that smooth quittance which is absolutely concocted, neither
yields any asperity to the touch, whereby we might suspect that as yet any portion
of the humor remains crude; we call that equal wherein you can note no diversity
of parts; and white not that which is perfectly so, but that which is of an alh col-
lour, as Galen observes; But it is ill, if when the cure is indifferently forward, a fluxe
of blood suddenly break forth in those Ulcers which beat strongly by reason of the
great inflammation adjoynd therewith. For as Hippocrates observes, an elu-
tion of blood happening upon a strong pulsation in Ulcers is evil; for the blood
breaking out of an Artery cannot be stayed but by force, and also this blood is fo
furious by reason of the heat and inflammation the nourishers of this Ulcer, that it
breaks its receptacles, and hence enguies the extinction of the native heat, whence
the defect of suppuration and a Gangrene ensues. Now for that there flows two
sorts of excrements from maligne Ulcers, the more thinnne is termed Ichor or fanni,
but the more gross is named forder; that is virulent and flows from pricked nerves,
and the Peristals when they are evil affected; but the other usally flows from the

Ulcers
Of Vícers, Fistula's and Hamorrhides.

Chapter III.

Of the general cure of vícers.

The curing of a simple Vícer consisteth in evacuation.


The things conducting to the generating of flesh.

For generating of flesh two causes must concur, the efficient and material. The efficient is, the good temper both of the whole body, as also of the Vícerated part. For this prevailing, there will be an attraction, digestion, apposition and assimilation of the laudable juice to the part afflicted, whereby the laudable temper is preserved by like things, but the vicious is amended by contraries. The matter to bee spent upon flesh, is laudable blood, which offendeth neither in quality, nor quantity. In this regeneration of the flesh there appeare two kinds of excrements, the one more thinne and humide called Sanies, the other more grofte termed Sordes. Both of these for that they are contrary to nature, doe therefore hinder the regeneration of flesh, and therefore must be taken away by applying their contraries, as by things drying.
drying in the first degree, and more strongly or weakly detergent according to the complexion of the part and the whole body, and the plenty and quality of the excrementitious humor, and the uncleaness of the Vlcer. For the part must be preferred by the use of the like, but the ulcer become by application of things contrary thereto. After that by nature's endeavour and the Chirurgion helps, the Vlcer is replete with flesh, it must be cicatrized, that is, covered with a callous skin instead of the true and native skin. It may be cicatrized by strewing of very drying pouders having very little or no acrimony. Thus Alume and vitrioll being burnt and made into powder, and thinly strewed upon the part do quickly cicatrize the former feithy works. To this purpose also serve, the root of Arisarum, Aloes, burnt Lead, Pomegranate pills burnt, Litharge, Tuttia, and also plates of Lead besmeared with quicksilver, whole efficacy for this purpose. Chirurgions sometimes finds more certain and powerful than any other remedies.

CHAP. V.

Of a distempered Vlcer.

Before we speak of a distempered Vlcer, it is meet, least that the Chirur- gion take one distemper for another, briefly to relate the signes of each. You may know that an Vlcer is associated with a dry distemper by your sight, as if the Vlcer be as it were wrinkled, if it send forth little or no moisture, also it is known by touch, if it feel rugged and hard. You shall correct this distemper by humecting medicines, as fomenting it with warme water according to Galens opinion, or else with Hydrellum (i) Oile and water mixt, but always you must first purge, if the body shall abound with ill humors, or use Phlebotomie if the body be phlethoraick; otherwise you shall draw more humors into the part than it can bear. Now you shall long foment it, until the flesh which is about it begin to look musty and moit, and the part it self become a little fwellne. If you proceed further, you will resolve all the humor which you have drawn thither, and your labour is in vaine. After the fomentation apply such a remedy to the ulcerated part, and

Then let Empl. di crufia or De minio be applyed to the Vlcer. Also I have found by experience that the powder of burnt aloes lightly strewed upon the Vlcer is very effectuall in this case. You shall know that an hot distemper associates the Vlcer by signes of rednesste, or yelownesse thereof, by the hote manifest to your touch, and the propriety of the paine. Then must you have recourse to refrigerating things, such as

We know a cold distemper by the whitish or pale colour, by the touch of the Chirurgion, and speech of the patient complaining of the coldness of the ulcerated part. You shall correct this by applying and putting bottles filled with water about the part, or else Swines bladders halfe filled with the following decoction.

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(i) Hydrellum: a dry, warming medicine used in distemper.
Of Vlers, Fistulae, and Haemorrhoides.

Lib. 13.

fist decûlis in vivo generatis, addendo aqua vitæ quad sufficiat. Aldo the Vlcer may conveniently be fomented with spunges dipped in the fame decoction, and let there be applied thereto Empl. Oxycroccum, emp. de melito, de Vigo cum mercurio; and fine mercurio. But if a mixt and compound distemper be joyned to the Vlcer, the medicines must in like manner be mixt & compofed. The residue of the Chirurgical care and pains must be spent upon the proper and peculiar cure of the Vlcer, as it is an Vlcer; which we said in the former Chapter was contained in deturition, regenerating flefh and cicatrization thereof.

Chap. VI.

Of an Vlcer with Pains.

Here oft times so great paine accompanieth Vlers, that it calls thereto the counfell of the Phyfitioner. Therefore if it proceed from any distemper, it shall be taken away by remedies proper againft that distemper, such as we mentioned in the former Chapter. But if it doe not so ceafe, wee must goe on to Narcotics. Such are cataplasmes of the leaves of Mandrakes, water lilies, Henbane, Nightshade, Hemlocke, the seeds of Poppy and Oyles of the fame, to which also may be added Opium, Papulcion, and other things of like faculties. But if a maligne astringent and virulence of an humour corroding and eating the flefh lying under it and the lips about it, cause and make the paine, you shal neitheraffle it by anodynes, nor Narcotics, for by application of gentle medicines it will become worse and worse. Wherefore if you must berake you to Catharticke; For strong medicines are fittest for strong diseases. Wherefore let a pledget dipped in ftrong and more than ordinarily powerfull Egyptian, or in a little oyle of Vitrioll, be applyed to the Vlcer; for these have power to tame this raging paine, and virulent humors. In the meantime let refrigerating things be put about the Vlcer, least the vehemency of acrid medicines cause a defluxion.

Chap. VII.

Of Vlers with overgrowing or proudnesse of flefh.

Llers have oft times proud or overgrowing fleshy in them, either by the negligence of the Chirurgion, or fault of the patient. Against this, drying and gently eating or consuming medicines must be applyed, such as are Galls, cortex thuris, Aloes, Twis, Antimony, Pompiliox, Vitrioll, Lead, all of them burn and drye if neede require. Of these pouderes you may also make ointments with a little oyle and waxe, but if the proud fleshe, as that which is hard and dente yield not to these remedies, we must come to catharticke, or else to iron, fo to cut it off. For in Galens opinion, the taking away of proud fleshe is no worke of nature, (as the generating, reftoring and agglutinating of the fleshe is) but it is performed by medicines which dry vehemently, or else by the hand of the Chirurgion; wherefore amongst the remedies fitt for this operation, the powder of mercury with some small quantity of burnt Alum, or burnt Vitrioll alone, feemes very effectuall to me. Now for the hard and callous lips of the Vlcer, they must bee mollyfed with medicines which have fuch a faculty, as with Calves, Goafe, Capons or Ducks greafe, the oiles of Lillies, sweet Almonds, Wormes, Whelpes, Oehipus, the mucilages of Marsh-mallowes, Linseedfeede, ferugreche &c. feede, Gum Ammoniacum, Galbanum, Badeium, of which being mixed may be made Emplaifters, ungues, and liniments, or you shall use Empl. Dischylon, or de Maczinibus, de Vigo cum mercurio. To conclude, after we have for some few days used such like remedies, you may apply to the Vlcer a plate of Lead rubbed over with Quicksilver, for this is very effectuall to smooth an Vlcer and depreffe the lips; if you shall prevaine nothing by this means, you must come to the cautickes, by which if you still prevaine nothing, for that the lips of the Vlcer are fo callous that the cautickes cannot perece into them, you must cleave them with a gentle scarification, or else cut them to the quicke, fo to make way,
Of Ulcers, Fistula's, and Hemorrhoides.

Of an Ulcer putride and breeding Wormes.

Wormes are divers times bred in ulcers, whence they are called wormie ulcers; the cause whereof is the too great excrementitious humidity pre pared to putrefy by unnatural and immoderate heat. Which happens, either for that the ulcer is neglected, or else by reason of the disfiger and deprived humors of all the body, or the affected part; or else for that the excrementitious humor collected in the ulcer, hath not open and free passage forth, as it happens to the ulcers of the ears, nose, fundament, neck of the womb, and lastly to all sinuous and cuniculous ulcers. Yet it doth not necessarily follow that all putrid ulcers must have wormes in them, as you may perceive by the definition of a putrid ulcer which we gave you before. For the cure of such ulcers after general means, the wormes must first be taken forth, then the excrementitious humor must be drawn away, whence they take their original. Therefore you shall foment the ulcer with the ensuing decoction, which is so force to kill them; for if any labour to take forth all that are quick he will be much deceived; for they oft times doe so tenaciously adhere to the ulcerated part, that you cannot plucke them away without much force and pain.

A fomentation to kill the wormes.

R. absinth. centaur. majoris. marrubij. an. M.f. fiat deecatio ad lb. in qua dissove aloe 3b. aquae aegyptiaca 5j. Let the ulcer be fomented and washed with this medicine, and let pledgetts dipped herein be put into the ulcer; or else if the ulcer be cuniculous or full of windings, make injection therewith which may goe into all parts thereof.

Archigenes much commendeth this following medicine. R. cera, liquiriz. reep. 5j. albit. an. M. f. fiat deecatio ad lb. in qua dissove aloe 3b. aquae aegyptiaca 5j. Licor, albit. an. M. f. fiat deecatio ad lb. Then use the following deterfiure medicine; R. sofi. appy, & plants. an. M. f. fiat medicamentum. The Chirurgion must well consider how many dressings he shall be able to wath.

Of a Sordide Ulcer.

Sordide Ulcer after the cure of the body in general, shall be healed with detergent medicines, the indication being drawn from the groffe and tough excrement, which with the excrementitious Sanies, as it were befiging, and blocking up the ulcerated parts, weakens and as it were nulls the force of medicines though powerfull, which causeth us to beginne the cure with fomentations and lotions as thus.

A detergent to wash away.
Of Vlcers, Fistulas, and Hæmorrhoides.

Chapter X.

Of a virulent, eating & malignant Vlcer which is termed Cacoëthes, & of a Chironim Vlcer.

How virulent and eating Vlcers differ not unleas

ay away the grosse soordes or filth flicking close to the Vlcer, and dry up the excrementitious sanies. For oftentimes these things may be done at one dressing; but in others who have more quicke sense or feeling, not so soone. But when the Vlcer is freed of such grosse Soordes or filth, you must forbeare to use more acride things for fear of paine, defluxion, inflammation, and erosion, whereby the Vlcer would become more hollow. Wherefore then we shall be content to apply remedies which dry and cleanse without acrimony, that wee may further nature's endeavours in generinge the Vlcers. Such remedies are the pouders of Aloes, Mashet, Myrthe, Orris, Litharge, Antimony, roos of Gentian, Barly flower, and the like, which being strew'd upon the Vlcer, you shall cover it with Linen, and put over that a plate of Lead, rubbed over with quicksilver, and you shall put on these detergents and desecratives more or lesse strong, as you shall finde it requisite and necessary. For too plentiful use of drying and detergents things, doth in time hollow the Vlcers, whereby it comes to passe that in short time in like fort, a greater quantity of Sanies flows from the Vlcer, the proper substance of the flesh being dissolved by the force or acrimony of the destructive medicines, as also the proper alimentary humor, which flowed to the part, being in like fort defiled: which thing beguiles the unskilfull Chirurgion. For by how much he sees the Vlcer flow more plentifully with same, he endeavours by so much the more to exhaust and dry up with more acrid medicines these humilities as if they were excrementitious. But Galen hath long agoe admonished us to take heed hereof, setting forth a History of a certain Empericke who dressing a forside Vlcer with agreeable, acrid and eating medicine, dissolved the flesh, and so conseqvently made the Vlcer more hollow, and caused more paine and defluxion; whereby it happened that continually adding more acrid medicines, he continually by his ignorance and unskilfulness increased the colliquation of the flesh, the largeness of the ulcer and excrementitious humidity. Wherefore wee must take special care, whether the forside Vlcer grow each day worse, by its proper fault and the impurity of the whole body besides, or else by the colliquation of the flesh and corruption of the benigne and alimentary humor sent thither for the nutrition of the part, by the too frequent and unskilfull use of too acrid medicines. Wherefore therefore we see when he must betake himself from too strongly cleansing and eating medicines, to those which are more mild.
gnaws and feeds upon the parts which lye under, and are adjoyning to the Vleer, and makes an eating Vicer. Such Vleers are by Galen called Dyepulotica, that is, difficult to be cicatrized: for, faith he, it happens that the Vleer is Dyepuloticke, either that the part affected may be vitiated either in the habit or temper thereof, so that it may corrupt the humor which flows thither; such an Vicer is by a particular name termed Cacchothes, or for that by reason of the evil quality of the blood flowing thither and eating the part, the part affected being too moist cannot heal up. He further addes that a Chironian Vicer is farre more maligne than these Vleers which are termed Cacchothes.

For the cure; by reason that all these Vleers have a large extent, for some are more apt to be cicatrized than other some; it is also necessary to have divers medicines ready and at hand distinct both in their faculties and the degrees thereof; so that it is no marvel if they oft fail of their purpose, who with the same medicine suffice and think they shall heal all maligne Vleers. This following medecine described by Asclepiades is much commended by Galen.

R. jugum aris, arvisnixafa, an. 3. cethab. b. 2. refine lation. s5. gue liquari possunt. col. 3. b. 4. for. arvis affandumur, and make an emplastre to bee laid onely upon the Vleer; for you must lay a descript about the Vleer for feare of intiam natron. But Galen faith that the following Epuloticke of i'wixis excels the rest, as that which to desperare Vleers, (which many have taken in hand and left as uncurable,) was of certaine and approved use.

R. foros s5. aluminis seifius, calciis vinae, an. 3. 3 5. thuvis, gallarium, an. 3. 3 5. cer. lb. j. cal. f. p. & 3. s. f. opinisimum lb. j. 3 3. vij. alci vetrica quantum suffeat, fist emplastrum.

Chap. XI.

An advertisement to the young Chirurgien touching the distance of times wherein maligne Vleers are to be dressed.

O thou the use of Asclepiades his medicine described in the former Chap. and convince the errour of these Chirurgions, who thinke they doe well for their patients, if they twife or thrice on a day dress maligne Vleers, I have here thought good to digresse a little from my purpose and to interpole Galens authority. Rightly (faith Galen) hath Asclepiades added these words to the formerly described medecine: And loofoe this attir three daies, and foment the Vleer, and fallen the fame emplastre being wafted, and apply it again, for unlesse the medicine adhere long to the skin, it will doe no good. Which thing notwithstanding many Phyfitiones have beene ignorant of, thinking if they wiped away the Stanes from the Vleer thrice on a day, they should doe better than those who did the same thrice a day. But those who doe it but once a day, are reproved by the patients as negligent. But they are much mistakene; for you must remember, as we have delivered in most of our writings, that the qualities of all neighbouring bodies do mutualy aaduance and affiit each other in some degree, though the one thereof bee much more powerfull; for by this reason in space of time they become somewhat alike, though they otherwise differ much. But when the quality of the medicine shall bee like in fpecius to the body to bee cured, there follows the better successe. Whereas he which moved by these reasons still appoind to use the emplastre formerly applied, is worthy of commendations; and we ought to follow him much the rather, seeing that which he found out by reason, is approved by experience. Neither did he unadvisedly command to foment the wound every third day, that is, every dressing; for seeing it is a powerfull medicine, therefore it stands in neede of mitigation. Thus much Galen, whose opinion grounded on reason, he can againe confirm with another reason. It is already sufficiently knowne, that medicines can doe nothing in us unlese by the force of the native heare, which stirres up the faculty of the medicine to operation. But in Vleers which are absolutely maligne, the native heare of the affected part is very languid, being broken
broken and debilitated by the presence of the preternatural heat; so that it floods
in need of a great space of time to abate the venum and faculty of the medicine.
Wherefore, if in that time, when as the native heat hath much moved and stirred
up the faculty of the medicine, the ulcer be loosed or opened, and that emplaster cast
away which was laid upon the part, and a fresh one laid in stead thereof; the heat
implanted in the part is either dissipated by the contact of the air, or is weakened
and driving in; and that endeavour which was made by the emplaster was to no
purpose, being as it were flopped in the midst of the course. But a new emplaster
being laid on, the heat of the part must undergo a new labour, so to stir up the
faculty to bring it to a flux.

For all medicines are, what they are, in faculty. Equal to this is their error, who
by too oft renewing their emplasters on the same day, do too powerfully
clene; for so they do not only take away the excrementitious humours, both sordes
and saures, but also the alimentary juice, to wit, the Rob. Cambium, and Glutae, which
are the next matter for producing of laudable flesh. Wherefore it is not good to
dress Victors to often in one day, and to loose them to apply new emplasters, unless
some grievous symptomes (as paine) force us to do it, which requires to be afferved
and mitigated by the often changing and renewing of Anodyne medicines.

Chap. XII.

How to bind up Victors.

The beginning of your bandage must be

At the Vicer.

Or the binding up of Victors, you must alwayes beginne your bandage at
the Vlicer. Now the Rowler must be so large that it may not onely co-
ver and comprehend the Vlicer, but also some portion of the adjacent
parts above and below; and let it press the Vlicer with that moderation,
that it may only press out the excrementitious humours. For if the ulcer will become
dry, and consequently more necere to healing, as it is observed by Hippocrates. Let this
be the measure of your binding, that it be neither too straite for hence would enfe
paine and defluxion; nor too laxe, for such is of no use. You may moysten your boule-
sters and Rowlers in oxycrate or in red and astringent wine, especially in Summer;
when you have bound it up the part must be kept quiet. For according to Hippocrates,
those who have an ulcer in the legge, ought neither to stand, nor sit, but to lye
on a bed. Wherefore when the legges are ulcerated the armes must be exercis
by handling, lifting up and casting downe of divers things. But on the contrary if
the armes be ulcerated, the legges must be exercis with walking, or frictions from
above downeward; if the patient cannot endure to walke. So the humors and spirits
which with more violence and greater plenty runne downe to the part affeted, may
be drawne backe and diverted.

Chap. XIII.

Of the cure of particular ulcers, and first of those of the eyes.

Or that in Galen's opinion, the diverse indication in curing diseases is drawne
from the condition of the part, to wit, the temper, complexion, site, figure,
life, dull or quick sense. Therefore having briefly handled the general
cure both of simple and compound and implicit ulceres, I thinke it fit to treat
of them now as they are distinguished by the parts, beginning with the of the eyes,
These according to Celsus, are sometimes caused by putrescens, or a sharpe defluxion
which feares or cares in funder the coats thereof, or life by a stroke.

Paulus lets downe these differences of the ulceres of the eyes; If (faith he) a small,
little and hollow ulcer be upon the hornie coat, it is by the Greecees termed Bartysyn, but
if it be broader and leffe deep, it is termed Caloma about the circle of the Iris or Raine-
Rainbow, it is called Argemnon. If it be crusty and fordist, it is termed Epicuina. This in general require the same cure as the former, that is, be munified, cleansed, and cicatrized, and the part affected indicates more gentle medicines. Wherefore having purged the patient and taken some blood both from his arms, as also from his veins and temporal Arteries, and bathed him if it be needful, to divert the defluxion you shall to his shoulders apply cupping glasses with sanguinaria, or else breath by breath draw out of the oven, and sprinkled with aqua viva or some good wine shall be applied to the original of the spinal marrow. But you shall apply to the forehead and temples an astringent emplastr made of emplastrum contra rupturam, ung Composita, and reflextractum rubrum mixed together. But this ensuing Colbertium described by Celsus and approved by Helierius, shall be dropped into the eye. R. aru moll, cedrea ufa & lota, an. 3. ec. ec. sanguina collyrium od liquore ovi dissolutum. But in the meantime you must diligently observe whether you put the eye to any great paine. Wherefore now and then by putting anodyne medicines therto, it will be good to comfort it. Also you may make collyria of the decoction of Plantaine, sanguinaria, a little quantity of Sugar Candy, tum. gumme traganath. myrtle and vitriol dissolved therein. When the ulcer is munified, the following farcasterie will be of good use.

R. sarcopseta in late multidi nutrita, 5s. pul, diatres simplicis, gum arabici, traganath. an. 3. muscitania sanguinari quamum sussus ut endo fiat collyrium. But you must note that for soift Vices, powders are more convenient than collyria. When the ulcer is played on filled with its proper seed, it may bee cicatrized with the following collyrium R. trunca, calotina ut adeo preparata, sanguina, antimon, albani, an. 3. sanguina, sarcopseta, cerasina Dracouna, absc. opy. an. 3. cum aqua plantaginis flat collyrium, or the powder onely may be conveniently火烧 thereon.

Celsus hath noted that the cicatrizing of the eyes is incident to two dangers, that is, last they be too hollow, or else too thick. If too hollow, they must be filled by the following remedy. R. Papaveria lactuima, 3s. segespeni, espanaci, an. 3. augina 5i. cumhini 5i. piperis 5i. calotina lav & cerasina, an. 5i. cum aqua plantaginis fiat collyrium. But if the tears be thicker or groffer, the following remedy will extenuate them. R. eucemom, acetaci, an. 3. calotina laz, crozi, myrtrea, papaveria lactuima, gum arabici, an. 3i. piperis ali, thanou, an. 5i. aqua comminuta, 5i. cum aqua plantaginis fiat collyrium. But if the tears be upon the cornea or hornie coat, so that it cover the pupilla or sight, the sight will be intercepted by the denseness of the membrane. Here you must also obserbe, that the tears that are on the Cornet are white, but thee on the Adnata are red, because this is spred over with more little veins than that.

Of the Ozerna and Vicers of the Nofe.

Of the Ozerna and Vicers of the Nofe.

He Ozerna is a deep and thinking Vicer in the inside of the nofe, sending forth many crusty and thinking excrements. Celsus faith that such ulcers can scarcely be healed. It is caufed (as Galen faith) by the distillation of acrid and purride humors from the head into the noferills about the mammillary processes. For the cure, the patient must eate sparingly, and his meat must neither be sharpe nor strong, the humor being prepared must be purged; the head dried and strenghened, that so it may neither admit the excrementitious humors, nor fend them downe; then must we come to the part affected with the Vicer. The Vicer must be dried with a repelling medicine, such as is the juice of Pomegranet boiled to the half in a bratfe vellife, the powder of Calamin, Creffes, while Hellebore, the juice of Creffes with Alume and other things which you may reade in Celsus.

Galen out of Archigenes wilhes, to draw up into the noferills the juice of Calamin, or that the Calamin it selfe being dried, and made into powder, may be blowne with a quill into the nofe. Others use this following powder. R. of. rufa,
Of Ulcers, Fistula's, and Hemorrhoids.

...of the Vlcers of the mouth.

For the cure, it shall be good to abstinence from all acid or things, and if it be a sucking child, it will not be amiss to temper the nurse's milk with refrigerating meates, washing the whole body, and fomenting the dugges with warme water; for all the members in children are most tender, and as it were mucous, and their mouths are unaccustomed to meates and drinks. For topick medicines, you must make choice of such which may quickly and readily work the effect, for the condition of the affected part is such that they cannot long remain and adhere thereto. Therefore if the Vlcer be maligne, it must be lightly touched with aquafortis which hath been used in separating mettalls and which besides is tempered with six parts of common water. You may also make use of Vitrioll, Sulphur Antimony, Mercury water, and the like; for writes, that simple VIcers of the mouth are healed with things which dry with moderation; now Diameron and Dianium are such. But others stand in need of strong medicines, with such like. If the palate be seazed upon, we must use the more diligence and care; for there is danger, least the being the partis hot and moist, the bone which lies under which is rare and humide, may be corrupted by the contagion and fall away, and the voice or speech be spoyled. If the Vlcer be packe, omitting the common remedies of Vlcers, you must speedily break out your felle to the proper antidote of that diseafe, to wit, quick silver.

Filitulous Vlcers often take hold on the Gummus, whence the roote of the next tooth becomes rotten, and so farre that the acrimonie of the Sanies oft times makes its felle a passage forth on the outside under the chinnes, which thing puts many into a false conceit of their Kings evil, and consequently of an uncurable diseafe. In such a cafe Atius, and Celsus counsell is, to take out the rotten tooth, for so
Of Ulcers relating to the Tongue.

The Ulcers of the tongue may be cured by the same remedies by which the rest of the mouth is cured, yet those which breed on the side thereof endure very long, and you must look whether or no there be not some sharp tooth over against it, which will not suffer the Ulcer in that place to heal; which if there be, then must you take it away with a file.

Chapter XVI.

Of the Ulcers of the Ears.

Ulcers are bred in the auditory passage both by an external cause, as a stroke, or fall, as also by an internal, as an abscess there generated. They at times flow with much matter, not there generated, for such Ulcers are usually but small and besides in spermaticke parts, but for that the brain doth that way disburden its self.

For the cure, the cheefe regard must be had of the antecedent cause, which feedes the Ulcer, and it must be diverted by purging medicines, Masticatories and Errhines. This is the forme of a Masticatory. \( \text{Mastic.} \) 3 j forced at the fide of cimmm & caroph. an. 3 j. forced Masticatoria, ut auta mare & vesperi. But this is the forme of an Errhine. \( \text{Eirthm.} \) 1 j. force botonic. mercurialis & melissa, an. \( \text{V.} \) vinic. 

For topick medicines we must utilize all fatty and oily things, as Galen sets downe in Method. medendi, where he andes fault with a certaine follower of Theophas, who by using Tetrapharmacum, made the Ulcer in the ear grow each day more filthy than other, which Galen healed with the Trochis of Andrea dissolvd in Vinegar, whose compofure is as followeth. \( \text{V. bals.} \) \( \text{Z.} \) alumin. \( \text{S.} \) estrament. \( \text{Z.} \) myrrha. \( \text{S.} \) subst. alcool. gallarium. an \( \text{Z.} \) j. fatis Ammon. \( \text{S.} \) ex. espiantur omnis masticato. \( \text{S.} \) fiant trochis. Galen in the same place windeeth, that he hath healed invertebrate Ulcers and of two years old of this kind, with the scales of Iron made into powder, and then boiled in sharpe Vinegar until it acquired the consistence of Honey. Moreover an Oxes gall dissolved in strong Vinegar, and dropped in warme, amends and dries up the putrefadion wherewith the Ulcers flow. Also the scales of Iron made into powder boiled in sharpe Vinegar; dried and strewned upon them. But if the straime of the passages should not give leave to the matter contained in the windings of the ears to passe forth, then must it bee drawne out with an Instrument thereupon called a Pyoulco, or matter-drawer, whereof this is the figure.

The figure of a Pyoulco, or matter-drawer.
Of the Victors of the windpipe, weazen, stomacke and Guts.

The Cause.

These parts are ulcerated either by an externall cause as an acride medicine, or poysion swallowed downe; or by an internall cause, as a maligne fretting humor which may equal the force of poysion generated in the body, and restrained in these parts. If the paine be encreased by swallowing or breathing, it is the signe of an Vlcer in the weazen, or windpipe joyning thereto; But the paine is most feebly felt when as that which is swallowed is either more acride, or the aire breathed in, is more hot or cold than ordinary. But if the cause of paine lye softened in the stomacke, more greevous symptoms urge; for sometimes theyTwound, have a nauseous disposition and vomiting, convulsions, gnawings, and paine almost intolerable, and the coldneffe of the extreame parts; all which when present at once, few can unlesse such as are young, and have very strong bodies. The same affect may befall the whole stomacke, but because both for the bitterness of paine, and greatneffe of danger, that Vlcer is farre more greevous which takes hold of the mouth of the Ventricle, honoured by the Ancients with the name of the heart, therefore Phyfitions doe not make so great a reckoning of that which happens in the lower part of the stomacke, Now we know that the Guts are ulcerated if Pus, or much purulent matter come forth by stoole, if blood come that way with much griping; for by the Pus staying and as it where gathered together in that place, there is as it were a certaine continual Tempsus, or defire to goe to stoole, Now all such Vlcers are cured by meates and drinks, rather than by medicines, according to Galen. Therefore you must make choyfe of all such meates and drinks as are gentle, and have a lenitive faculty, fluming acride things; for Tizia, Lythraghe, Cerue, Verdigrreece and the like, have no place heere, as they have in other Vlcers. But when as the Vlcer shall be in the Gullet or Weazen, you must have a care that such things may have some viscidity or toughness, and be swallowed downe by little, and little, and at divers times; otherwise they will not much avail, because they cannot make any stay, in thiss comune wayes of breath and meat; therefore they presently slip downe and flow away; wherefore all such things shall be used in forme of an Ejece, ma to be taken lying on the backe, and swallowed downe by little and little, opening the muscles of the throate, leaft the medicine pass downe sodainely and in great quantity, cause a cough, a thing exceeding hurtfull to these kinds of Vlcers. When they must be clenched, you shall have crude honey, which hath a singular faculte, above all other detergent things of these kind of Vlcers. But when they can conveniently swallow, you shall mixe Gumme Tragacanth dissolved in some astringent decodion. In Vlcers of the stomacke all acride things (as I have formerly advise) must be flunne, as thole which may cause paine, inflammation and vomitite, and besides hinder the digestion of the meate, Therefore let them frequently use a prifon, and figgerd gellyes wherein Gumme Tragacanth, and bole Abruicke have beene put, the decodion of Prunes, Dates, Figges, Raisons, Honey, Cowes milke boyled with the yolkes of egges, and a little common honey. When they are to be agglutinated, it will be convenient to make use of suftere, affringent, and agglutinative things which want all acrimony, and ungratefull taste, such as are Hesperide, Pomegranate flowers and pills, terra sigillata, junach, accia, a decodion of quinces, the Lentiske wood, the tops of Vines, of brambles, myrtles, made in astringent wine, unleffe there be feare of inflammation. Their drinkes shall be Hydromel water with Sugar, syrupe of Violets and Jujubes. Honey mixed with other medicines is a veryfitting remedy for Vlcers of the guts and other parts more remote from the stomacke; for if you shall use astringent medicines alone of themselves, they will stick to the stomacke; neither will they carry their strength any further; but honey mixed with them, besides that it diatributes them to the refl of the body, and helps them forwards to the affected parts; also clenches the Vlcers themselves. Here also Affes milke may with good successe be used in read of Goates or Cowes milke. The use
Of Ulcers, Fistula's, and Haemorrhoides.

Of a vulnerary potion is also commendable, if to bee that it bee made of such herbs and simples, as by a certaine tacite familiarity have respect to the parts affected. But the Ulcers of the Guts have this difference amongst themselves, that if the greater guts be affected, you may heal them with a Glyster and injections, made also shape to correct the putrefation, such as are those which are made of Barley water, or wine with Egyptianum. But if the small guts be ulcerated, they must be rather healed by portions and other things taken at the mouth, for that (as Galen faith) these things which are put up into the body by the Fundament, do not commonly attend to the small or slender guts, but such as are taken at the mouth cannot come unlesse with the losse of their faculty, so farre as the great guts.

Chap. XVIII.
Of the Ulcers of the Kidneys and Bladder.

Ulcers are caus'd in the Kidneys and Bladder, either by the use of acride meats, drinks, or medicines, as Cannabis, or else by the collection of an acride humor bred in that place, fent or false thisses, or else by the rupture of some vessel, or an abscene cleft, broken and degenerated into an Ulcer, as it yometimes comes to pase. They are discentred by their fire, for the paine and heavinesse of Ulcers of the Reines comes to the Loynes, and the Pur or matter is evacuated well and thoroughly mixed with the Vrine.

Neither doth the Pur which flows from the reines stinke fo ill, as that which is call'd forth of the bladdcr; the reason is, for that the bladder being a bloodless, sterile & membraneous part, hath not such power to resist putrefation, as which flows from the Kidneys never flows without water, and although by long keeping in a Vrinal, it is a length fulbides or falls to the botomme, and may be fecene separated, yet when it is first made, you may see it perfectly mixed with the Vrine, but that Pur which flows from the bladder is oft times made alone without Vrine; and usually it comes to passe that the Pur, or matter which flows from the ulcerated Kidneys, hath in it certaine caruncles, or as it were haires, according to the rule of Hippocrates. Those who in a thick Vrine have little caruncles, and as it were haires come forth therewith, they come from their Kidneys; but on the contrary those who have certaine bran-like scaleis come from them in a thick Vrine, their bladder is scabby or troubled with a scabby Vlcer.

For the cure, it is expedient that the belly be soluble either by nature or Art, and the use of mollifying Glysters. And it is good to vomit sometimes, so to draw backe the humors by whole conflux into the affected part the Ulcer might bee fed and made more solid and filthy. You must beware of strong purgations, lest the humors being moved and too much agitated, the matter fit to nourish the Ulcer may fall downe upon the Kidneys or bladder. The ensuing potion is very effectuall to mundifie those kind of Ulcers.

R. Hordei integri, M. j. glycyrhizae ras. & conif. J. j. rad. aceti & petrosel. an. 3. j. fas decociti ad 15. j. in solutura dissolve melis dispum. 3. j. Let him take every morning the quantity of foure Ounces. Gordenius exceedingly commend's the following Trochiceis. R. quater fem. frig. maj. mundatorum, fem. papaveris albi, fem. malvae, portul. cydon. baccarum myrti, tragananthi, gum. arabi, nucum pinearum mund. pistach. glycyrhizae mund. nucaginis sem. psil. amyg. dule, hordei mund. an. 5. j. bals. armect. ang. drac. spod. roforium myrrha an. 5. j. excepium hydromelis, & spinamini trochiceis jugul. ponderis 5. j. Let him take one thereof in the morning dissolve in Barly water or Goates milke. Galen bids to mixe honey and diuerse things with medicines made for the Ulcers of the Reines and bladder, for that they gently move Vrine, and are as vehicles to carry the medicines to the part affected. Ulcers of the bladder are either in the botomme thereof, or at the necke and urinary passage:

If they be in the botomme, the paine is almost continual, if in the necke, the paine then pricks and is most terrible when they make water, and presently after. The Vlcer which is in the botomme sends forth certaine fealy or skinny excrements together with the Vrine, but that which is in the necke, causeth almost a contiguall Tentigo. Those which are in the botomme are for the most part incurable, both by

Caufa.

Signs.

The cure.

Why we must pursue this

Things to

Troublous for

the Ulcers of the

Kidneys

and bladder.

4. Made,
Of Ulcers, Fistula's and Haemorrhides.

Lib. 12

Why ulcers in the bottom of the bladder are incurable.

reason of the bloodye and nervous nature of the part, as also for that the Ulcer is continually chafed and troubled by the acrimony of the Urine, so that it can hardly be cicatrized. For even after making of water some relics of the Urine alwayes remain in the bottom of the bladder, which could not therefore passe forth together with the rest of the Urine, for that for the passing forth of the Urine, the bladder being distended before, falls and is complicated in its selle, Ulcers of the bladder are healed with the same medicines as those of the reins are; but these not only taken by the mouth but also injected by the urinary passage. These injections may be made of Gordoam his Trochiccs formerly prescribed, being dissolved in some convenient liquor; but because Ulcers of the bladder cause greater and more sharp pains than those of the Kidneys, therefore the Chirurgion must use more diligent infusing Anodynes. For this purpose, I have often by experience found, that the oyle of hen-bane made by expression gives certaine helpe. Hee shall doe the same with Cataplasmes and liniments applyed to the parts about the Perineum, and the lower belly, and permexum as also by calling in of Glister's. If that they stinke, it will not be amisse to make injection of a little Egyptiaca dissolvd in wine, plaincaine or rose water. For I have often used this remedy in such a case with very prosperous successe.

Chap. XIX.

Of the Ulcers of the womb.

The caus.

Ulcers are bred in the womb either by the confluxe of an acride, or a bitting humor, fretting the coats thereof, or by a tumor against nature degenerating into an Abscisse, or by a difficult and hard labour; or they are knowne by paine at the perinæum, and the effuxe of and Sanies by the privity. All of them in the opinion of are either putride, when as the Sanies breaking forth is of a flinking smell, and in colour resembles the water wherein flesh hath been washed, or elles foridce, when as they flow with many virulent and enude humors, or else are eating or spreading Ulcers, when as they call forth blacke Sanies, and have pulsation joyned with much paine. Besides they differ amongst themselves in fire, for either they possesse the necke and are known by the light, by putting speculum to else are in the bottome, and are manifested by the condition of the more liquid and serous excrements, and the fire of the pains. They are cured with the same remedies wherewith the ulcers of the mouth to wit, with aqua fortis, the oyle of Vitrioll and antimony, and other things made somewhat more milde, and corrected with that moderation, that the ulcerated parts of the womb may bee safely touched with them; it is requisite that the remedies which are applyed to the Ulcers of the womb, doe in a moment that which is expected of them, that they cannot long adhere or thicke in the womb, as neither to the mouth. Galen faith that very drying medicines are exceeding fit for the Ulcers of the wombe, that to the purtrefaction may be hindered or restrained, whereto this part as being hot and moist is very subiect, besides that the whole body unto this part as unto a sinke sends downe its excrements. If an ulcer take hold of the bottome of the womb, it shall be cleanefed and the part also strengthened by making this following injection: Aqua fortis, aqua albuginis, aqua albuæ solutæ, aqua albuæ coagulatae, aqua albuæ defigillatae, aqua albuæ purificatae. For amending the slinking smell I have often had certaine experience of this ensuing remedy. R. vitriol, r. aqua albuginis. Thus the putrefaction may be correkt and the painfull malicitiose of the humor abated. Ulcers when they are clentfed must prefently be cicatrized, that may be done with Alume water, the water of plantein wherein a little vitrioll or Alume have been dissolvd. Lastly, if remedies nothing availing, the Ulcer turne into a Cancer, it must be drenched with anodynes and remedies proper for a cancer, which you may finde set downe in the proper treatise of Cancers. The cure of Ulcers of the fundament was to bee joyned to the cure of thence of the womb, but I have thought good to refere it to the treatise of Fistula's, as I doe the cure of thence of the urinary passage to the Treatise of the Loci venerea.
Varix is the dilatation of a Veine, some whilsts of one and that a simple branch, other whilsts of many. Every Varix is either straight or crooked, and as it were infolded into certaine windings within its selfe. Many parts of the body are subject to Varices, as the temples, the region of the belly under the Navill, the testicles, wombe, fundament, but principally the thighs and legges. The marker of them is usually melancholy blood, for Varices often grow in men of a melancholy temper, and which usually feed on grosse metes, or such as breed grosse and melancholy humors. Also women with child, are commonly troubled with them, by reason of the heaping together of their suppresed menstrual evacuation. The precedent causes are a vehement concussion of the body, leaping, running, a painfull journey en foot, a fall, the carrying of a heavy burden, torture or Racking. This kind of disease gives manifest sigs of by the largeness, thickenes, swelling and colour of the Veines. If it be not to meddle with such as are inveterate, or of such being cured there is to be feared a reflexue of the melancholy blood to the noble parts, whence there may be imminent danger of maligne Veers, a Cancer, Madaffet or suffocation. When as many Varices and diversely implicit are in the legges, they oftenswell with congealed and dryed blood, and cause paine which is increated by going and compression. Such like Varices are to be opened by dividing the veine with a Lancet, and then the blood must be pressed ou, and evacuated by pressing it upwards and downwards; which I have oftimes done, and that with happy successe to the patients, whom I have made to rest for some few dayes, and have applied convenient medicines. A Varix is often cut in the inside of the legge a little below the knee, in which place commonly the originall thereof is seen. He which goes about to intercept a Varix downwards from the first originall and as it were fountain thereof, makes the care far more difficult. For hence it is divided as it were into many rivetles, all which the Chirurgion is forced to follow. A Varix is therefore cut or taken away so to intercept the passage of the blood and humors mixed together therewith, flowing to an Veire feared beneath, or else leaft that by the too great quantitie of blood, the vesseall should be broken, and death be occasioned by a hemorrhagie proceeding from thence. Now this is the manner of cutting it. Let the patient lye upon his breste on a bench or table, then make a ligature upon the legge in two places the distance of foure fingers each from other, wherein the excision may be made, for so the Veine will swell up and come more in sight, and besides you may also mark it with ink, then taking the skin up between your fingers cut it longways according as you have marked it, then free the bared veine from the adjacent bodies; and put thereunder a blunt pointed needle (leat you pricke the veine) therewith a short double thred, and so binde it fast; and then let it be opened with a Lancet, in the middle under the Ligature just as you open a veine, and draw as much the rence as shall be fit. Then straight make a Ligature in the lower part of the forementioned Veine, and then cut away as much of the said Veine as is convenient betweene the Ligatures, and so let the ends thereof withdraw themselves into the fis above and below; let thefe ligatures alone untill such time as they fall away of themselves. The operation being performed, let an astringent medicinbe applied to the wound and the neighbouring parts; neither must you stirre the wound any more for the space of three dayes. Then doe all other things as are fit to be done to other such affects.
Of Fistula's.

Chap. XXI.

What a Fistula is.

Fistula is a sinuous, white, narrow, callous and not seldom unperceivable Vlcer. It took its denomination from the similitude of a reed (Fistula) that is a pipe, like whose hollowness it is. A Fistula is bred in any parts of the body, and commonly follows upon Abscesses or Vlcers not well cured.

What a Gale lourns.

A Gale or hollow is a certaine fleshly substance, white, solid, or dense and hard, dry and without paine, generated by heaping up of dryed excrementious phlegme, or else adult melancholy, encompassing the circuitue of the Vlcer, and substituting its selfe into the place of laudable flesh. The Sims or cavity of a Fistula is sometimes dry, and otherwise drops with continual moisture: sometimes the dropping of the matter sodainly ceaseth, and the orifice thereof is shut up, so it may deceive both the Chirurgeon and the Patient with a false shew of an absolute cure; for within a while after it will open againe and run as formerly it did. Some Fistula's are bred by the corruption of a bone, others of a nerve, others of membranes, and others of other parts of the body. Some run straight in, others and the greater part, have turnings and windings; some have one, others have more orifices and windings: some are at the loyns, others penetrate into some capacity of the body, as into the cheef, belly, guts, womb, bladder: some are easily, others difficultly cured, and some wholly incurable. There are divers signes of Fistula's according to the variety of the parts they poffes; for if that which you touch with the end of your probe make reftistance, and refound, then you may know that it is come to the bone, and then if the end of the probe flip up and downe as on a smooth and polieh superficies, it is a signe that the bone is yet found; but if it stop and stay in any place as in a rough way, then know that the bone is eaten, rough and perished; sometimes the bone lies bare, and then you neede not use the probe. Besides also it is a signe that the bone is affected, if there be a purulent efflux of an unctuous or oily matter, not much unlike that marrow wherewith the bone is nourished. For every excrement shewes the condition of the nourishment of the part whence it is sent; in a Fistula which penetrates to a Nerve, the patient is troubled with a pricking pain, especially when you come to search it with a probe, especially if the matter which flows downe be more acrid. Oft times if it be cold, the member is stupified the motion being weakned; besides also the matter which flows from thence is more subtle, and somewhat like unto that which flows from the bones, yet not oily nor fat, but famous and viscus resembling the condition of the alimentary humor of the Nerves. The same usually appears and happens in Fistula's which penetrate to the Tendons and those membranes which involve the muscles. If the Fistula bee within the flesh, the matter flowing thence is more thick and plentiful, simoom, white and equall. If it defend into the Veines or Arteries, the same happen as in those of the Nerves; but that there is no such great paine in searching with your probe, nor no offence or impediment in the use of any member: yet if the matter of the Fistulous Vlcer be so acrid, as that it corrode the vessels, blood will flow forth; and that more thicke if it be from a veine, but more subtle and with some murmuring if from an Artery, Old Fistula's and such as have run for many yeares, if suddainly shut up, cause death, especially in an ancient and weake body.

Chap. XXII.

Of the cure of Fistula's.

How to finde out the windings and corners of Fistula's.

Or the cure in the first place it will be expedient to search the Fistula, & that either with a waue sizy, a probe of lead, gold or silver, to find out the depth and windings or corners thereof. But if the Fistula be hollowed with two
or more orifices, and those cuticular, so that you cannot possibly and certainly
search for them out with your probes; then must you call an injection into
some one of these holes, and so observe the places where it comes forth, so you
may learn how many, and how deep or superficial cavities there be; then by in-
making injections you must lay open and cut away the callous parts. You must make in-
cisions with an incision knife or razor, or else apply actual or potential cauteries;
for nature cannot until the Callous substance be first taken away, restore
or generate flesh or agglutinate the distant bodies. For hard things cannot grow
together, unless by the interposition of glue, such as is laudable blood, but a callous
body on all sides possessing the surface of the ulcerated flesh, hinders the flowing of
the blood out of the capillary veins for the reftoring of the lost substance and uni-
ing of the disjointed parts. If you at any time make cautelike injections into the
Fistula, you must precisely stop the orifice thereof, that so they may have time to
work the effect, for which they are intended. Which thing we may conjecture
by the tumor of the part, the digitation of the flowing matter, and its lesser quantity.
Then you must hasten the falling away of the Eschar, and then the Vicer must be defec-
ted like other Vicers. But oft times the callous which poiffles the sinuous cavity
of a Fistula, overcome by the power of acrid and escharoticke medicines comes
whole forth, and falls out like a pipe, and so leaves a pure Vicer underneath it.
Which I observed in a certain Gentleman, when I had washed with strong Acetyl-
bum divers times a Fistulous Vicer in his thigh shot through with a bullet; then
previously by putting in my Balame formerly described, he grew well in a short time.
Fistula's which are near great vessels, Nerves or principal intrmaries, must not be
diced with, unless with great caution. When a Fistula proceeds by the fault of a
corrupt bone, it is to be considered whether that fault in your bone be superficial,
or deeper in; or whether it is wholly rotten and consumed. For if the fault be superfic-
iary it may easily be taken away with a desquamatory Trepan; but if it penetrate
even to the marrow, it must be taken forth with cutting mullets, first having made
way with a Curet. But if the bone be quite rotten and consumed, it must be
wholly taken away, which may be fairly done, in the joynts of the fingers, the radius
of the Cubite and Legge; but no such thing may be attempted in the focket of the
Huckle bone, the head of the Thigh bone, or any of the Rack bones when they are
mortified, neither in those Fistula's, which are of their owne nature uncurable; but
you shall think you have discharged your duty and done sufficiently for the Patient,
if you leave it with a prognosticke. Of this nature are Fistula's which penetrate
even to the bowells, which come into the parts overspread with large vesicles or
Nerves, which happen to effeminate and tender persons, who had rather dye by
much, than to suffer the paine and torment of the operation. Like caution must be
used, when by the cutting of a Fistula there is feare of greater danger, as of convul-
sion if the disease be in a nervous part. In these and the like cases the Chirurgion shall
not set upon the perfect cure of the disease, but shall think it better to prevent by all
means possible that the disease by fresh supplies become no worse, which may bee
done if he prevent the falling downe of any new defluxion into the parts; for an
artificial diet bee hased that excrementitious humors be not too plentifully gen-
erated in the body; or so order it, that being generated they may be evacuated at
certaine times, or else diverted from the more noble to the bafe parts. But in the
mean space it shall be requisite to wast the faulty flesh, which grows up more than
is fitting in the Vicer, and to cleanse the sore with medicines, which may doe it without biting or acrimony and pure filth.

Of the Fistula's in the Fundament.

Fistula's in the Fundament are bred of the same causes as other kinds of
Fistula's are; to wit, of a wound or abscess not well cured, or of a hemor-
throid which is suppurated. Such as are occult, may be known by drop-
ing downe of the putrid and purulent humor by the Fundament and
the pains of the adjacent parts. But such as are manifest by the help of your probe you may find whither they goe and how farre they reach. For this purpose the Chirurgion shall put his finger into the Fundament of the patient, and then put a Leaden probe into the orifice of the Fistula, which if it come to the finger without interposition of any medium, it is a signe it penetrates into the capacity of the Gut. Besides also there flows not onely by the fundament but also by the orifice which the maligne humor hath opened by its acrimony, much matter, somewhicles fancious, and at times also breeding Wormes. Fistula’s may be judged cuniculous, and running into many turnings and windings, if the probe doe not enter farre in, and yet notwithstanding more matter flows thereon than reacon requires should proceede from so small an Ulcer.

You may in the orifices of all Fistula’s perceive a certaine callous wart, which the common Chirurgion terme a Hernie afe. Many symptoms accompany Fistula’s which are in the Fundament, as a Tumefcens, strangury & falling downe of the Fundament. If the Fistula must be cured by manual operation, let the patient lye so uppon his backe, that lifting up his legges, his thighs may preffe his belly, then let the Chirurgion, having his nails pared, put his finger besmeared with some ointment into the patients Fundament, then let him thrust in at the orifice of the Fistula a thick Leaded needle drawing after it a thread consisting of thread and horse hairs woven together, and then with his finger taking hold thereof and somewhat crooking it, draw it forth at the Fundament, together with the end of the thread. Then let him knit the two ends of the thread with a draw or loose knot, that so hee may straiten them at his pleasure. But before you bind them you shall draw the thread somewhat roughly towards you as though you meant to saw the flesh therein contained, that you may by this meanes cut the Fistula without any feare of an Hæmorrhagye, or flux of blood.

It sometimes happens that such Fistula’s penetrate not into the Gut; so that the finger by interposition of some callous body cannot meete with the needle or probe. Then it is convenient to put in a hollow iron or silver probe so through the cavity thereof to thrust a sharp pointed needle, and that by prickings and cutting may destroy the callous; which thing you cannot performe with the formerely described leaden probe, which hath a blunter point, unless with great paine.

The description of a hollow Silver probe to be used with a needle, as also a Leaden probe.

A. Shows the Needle.
B. The hollow probe.
C. The needle with the probe.
D. The Leaded needle drawing a thread after it.

The Callous being wafted, the Fistula shall be bound as wee formerly mentioned. That which is superflueary needs no binding, onely it must be cut with a crooked fcalprous, and the Callous being consumed, the rest of the cure must bee performed after the
the manner of other Ulcers. But you must note, that if any parcel of the Callous body remaine untouched by the medicine or instrument, the Fistula reviving againe will cause a relapse.

Chap. XXIII.

Of Hæmorrhoides.

Hæmorrhoides, as the word is usually taken, are tumors at the extremities of the veines accompanying the Fundament, caused by the defluxion of an humor commonly melancholick, and representing a certain kind of Warts. Some of these run at an hole being opened, which sometimes in space of time contracts a Callus; others only swell, and cast forth no moisture; some are manifest; others lye only hidde within. Tho' which runne, commonly cast forth blood mixed with yellowish feros moisture, which stimulates the blood to breake forth, and by its acrimony opens the mouthes of the veines. But such as do not run, are either like blisters, such as happen in burns, and by practitioners are usually called vesicles, and are caused by the defluxion of a phlegmaticke and feros humor; or else represent a Grape, whence they are called Vescles, generated by the afflux of blood laudable in qualitie, but overaboundant in quantity; or else express the manner of a difafe, whence they are termed morales. proceeding from the suppreffion of melancholick blood; or else they represent warts, whence they are called verrucules, enjoying the fame materiall cause of the generation as the morales doe.

This affect is cause of many accidents in men; for the perpetuall effluence of blood extinguisheth the vivide and lively colour of the face, calls on a dropstle overthrows the strength of the whole body. The deflux of Hæmorrhoides is commonly every mome, sometimes once foure times in a yeare. Great paine, inflammation, an Abomine which may at length end in a Fistula, unlefe it be resifted by convenient reme- dies, doe oft times forerunne the evacuation of the Hæmorrhoides. But if the Hæmorrhoides flow in a moderate quantity, if the patients brooke it well, they ought not to be stayed, for that they free the patients from the feare of imminent evils, as melancholy, loprote, strangury and the like. Besides, if they bee stopped without a caufe, they by their reluxus into the Lungs caufe their inflammation, or else breake the veffells thereof, and by flowing to the Liver caufe a dropstle by the suflbeation of the native heate; they caufe a dropstle and univerfal leanenefte; on the contrary, if they flow immoderately, by refrigerating the Liver by losse of too much blood; wherefore when as they flow too immoderately, they muft be stayed with a pledget of hare downe dipped in the ensuing medicine. R. Pulp. doses, thoru, balau, tang acca, cet. or 5º. incorporator finalrum eos album, fiet medocamment ad ujum. When they are stretched out and swollen without bleeding, it is convenient to beare an Onion roasted in the embers with an Oxes gall, and apply this medicine to the swollen places, and renew it every five houres. This kind of remedy is very preve- lent for internall Hæmorrhoides, but such as are manifest may be opened with hot leaches, or a Lance. The juice or maffe of the hearte called commonly Death nett, or Arkeangell, applied to the twelwe Hæmorrhoides openeth them, and makes the congealed blood flow thereon. The Furgus and Thymus being difaces about the fundament are cured by the fame remedy. If acrimony heate and paine doe too cruelly afflict the patient, you must make him enter into a bath, and preferably af- ter apply to the ulcers (as any such be) this following remedy. R. Olif. sii, citrica, 3ª. Litbários sii, citrica, 3ª, fis uguent, secundum artes, Or else, R. thoria, myrrha, sii, citrica, 3ª, opii sui, fis uguentum cum oleo rofæum & mucagine sem, piffi, ad- dendo vitellum unius eos. You may easily prosequite the residue of the cure according to the general rules of Art.

The end of the Thirteenth Booke.
OF BANDAGES,
or,
LIGATURES.

THE FOURTEENTH BOOK.

CHAP. I.

OF the differences of Bandages.

Andages, wherewith we use to binde, doe much differ amongst themselves. But their differences (in Galens opinion) are chiefly drawne from fice things; to wit, their matter, figure, length, breadth, making, and parts whereof they confit. Now the matter of Bandages is threefold; Membranous or of skinnes, which is accommodated peculially to the fractured griffes of the Nofe; of Woollen, proper to inflamed parts, as thole which have neede of no afftriction; of Linen, as when anie thing is to be all bound: and of Linen cloathes, some are made of flaxe, otherfome of hempe, as Hippocrates oberves. But Bandages doe thus differ amongst themselves in ftrudure, for that fome thereof confit of that matter which is fufficiently clofe and frong of it felfe, fuch are the membranous; others are woven, as the Linen ones. But that Linen is to bee made choice of for this ufe, and judged the beft, not which is new and never formerly ufed, but that which hath alredie beene wore and served for other ufe, for thofe the Bandages made thereof may be the more soft and pliable; yet muft they bee of fuch ftrength, that they may not breake with fretching, and that they may fraitley containe and repel the humour readie to flow downe, and fo hinder it from entering the part. Thofe, besides, muft not bee hemmed nor fitched, muft have no lace nor feame; for hems and feames by their hardneffe preffe into, and hurt the fleshe that lyes under them. Lace, whether in the midst or edges of the rowlcr, makes the Ligature unequall. For the Member where it is touched with the Lace, as that which will not yeeld, is preffed more hard, but with the cloth in the middle more gently, as that which is more laxe. Furthermore, thofe Ligatures muft bee of cleane cloth, that if occaftion bee, they may be moystened or fteeped in liquour appropriate to the difafe, and that they may not corrump, or make worfe that liquour by their moiftening therein. Now the Bandages which are made of Linen cloathes muft be cut long-waies, and not a-thwart, for fo they hall keepe more firme and frong that which they binde, and besides, they will be always like, and not broader in one place than in another. But they thus differ in figure, for that fome of them are rowled up, to which nothing muft be fowed, for that they ought to be of a due length to binde up the member; others are cut or divided, which truly confit of one piece, but that divided in the end (fuch are uially taken to bind up the breasts) or elfe in the midst; others are fowed together, which confit of many branches fowed together, and ending in divers heads, and reprefenting divers figures, fuch are the Bandages appropriated.
Concerning Bandages, or Ligatures.

Lib. 14.

554

CoticeTning'B adages, if LigatuLes.

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to the head. But they thus differ in length, for that some of them are shorter, others longer 1 so in like for breadth, for some are broader, others narrower. Yet wee cannot certainly define nor set downe neither the length, nor breadth of Rowlers, for that they must be various, according to the different length and thicknefe of the members or parts. Generally they ought both in length and breadth to fit the parts, whereunto they are used. For these parts require a binding different each from other, the head, the necke, shoulders, arms, breasts, groines, refhicles, fundament, hips, thighs, legs, feet and toes. For the parts of Bandages, wee terme one part their bodie, another their heads. By the bodie we mean their due length & breadth, but their ends, whether they run long waies or a-croffe, wee according to Galen, terme them their heads.

CHAP. I.

Sheoweth the indications and generall precepts of fitting of Bandages and Ligatures.

Here are, in Hippocrates opinion, two indications of fitting Bandages or Ligatures; the one whereof is taken from the part affected: the other from the affect it selfe. From the part affected: so the legge, if you at any time binde it up, muft bee bound long-waies; for if you binde it overthwart, the binding will loofen as foon as the patient beginnest to goe, and put forth his legge, for then the muscles take upon them another figure. On the contrary the Arme or Elbow muft be bound up, bending in and turned to the breast, for otherwise at the first bending, if it bee bound when it is stretched forth, the Ligature will be flacked, for that (as we formerly said) the figure of the muscles is perverted. Now for this indication, let each one perfwade himfelfe thus much. That the part must be bound up in that figure, wherein wee would have it remaine.

Now for that indication which is drawne from the dilation, if there be a hollow ulcer, fainious and curculious, caufing forth great store of Sames, then muft you begin the ligature and binding from the bottome of the sinus, and end at the orifice of the ulcer; and this precept muft you alwases obferve, whether the sinus be sealed in the top, bottome, middle, or sides of the ulcer. For thus the fith therein contained shall bee emptiied and caft forth, and the lippes of the ulcer too farre separated, shall bee joynted together; otherwife the contained fith will eate into all that lies near it, increale the ulcer, and make it incurable by rotting the bones which lye under it with this acride samies or fitch. But some Ligatures are remedies of chemicles, as thoefee which perfome their duties of themselues, and whereunto the cure is committed, as are thoefee which reforde to their native unitie, thoefee parts which are disjoyned: others are not used for their owne fakes, but only to serve to hold fuch medicines as have a curative facultie. This kinde of Ligature is euyther yet a doing, and is termed by Hippocr. Deligatio operans; or else done and finifhed, and is called, Deligatio operata: for the fiff, that the Ligature may be well made, it is fift that it be clofe rowled together, and befides, that the Surgeon hold it fiffefe and ftrait in his hand, and not carelely, for fo he fhall binde up the member the better. Alfo he muft in the binding obferve, that the ends of the Rowler, and confequently their faftning may not fall to bee on the affected or grieved part; for it is better that they come above or below, or else on the side: befides also, he muft have a special care that there be no knotted upon the fame place, or upon the region of the backe, buttocks, fides, joynts, or backe part of the head, or to conclude in any other part upon which the Patient uses to leane, rfe or lye. Alfo on that part where we intend to low or faften the Rowlers, you muft double in their ends, that fo the faftning or future may be the stronger, otherwife how clofe foever they fhall be wrap- ped or rowled about the member, yet will they not remaine firme, especially if they be of a great breadth. For the second kinde of Ligature, so wit, that which is already done and finifhed; the Surgeon, the performer thereof, muft conferde to what end
Concerning Bandages, or Ligatures.

It was done, and whether he hath performed it well and fitly, as also neatly and elegantly, to the satisfaction both of himselfe and the beholders. For it is the part of a skillfull Workeman evrie where handfomely and rightly to performe that which may so be done.

In fractures and luxations & all dilocations of bones, as also in wounds and contusions, you must beginne your bandage with two or three windings or wraps about upon the place, and that (if you can) more straitly than in other places, that so the fract bones may be the better kept in their places, and that the humors, if any be already fallen thither, may by this strait compreッション be pressed forth, as also to hinder and prevent the entrance in of any other which may be ready to fall down. But in fractures (as those which never happen without contusion) the blood flows, and is pressed forth of its proper vessels, as those which are violently battered and torne, which causes suppuration in the surrounding flesh, which first looks red, but afterwards black and blue by reason of the corruption of the blood poured forth under the skinne. Wherefore after these first windings, which I formerly mentioned, you must continue your rowling a great way from the broken or luxated part; for which does otherwise, will more and more draw the blood and humors into the affected part, and cause Impostumes, and other maligne accidents. Now the blood which flows, goes but one way downwards, but that which is pressed is carried as it were in two pathes, to wit, from above downwards, and from belowe upwards. Yet you must have a care that you rather drive it backe into the body and bowels, than towards the extremities thereof, as being parts which are incapable of so much matter, and not furnished with sufficient strength to suffer that burden, which threatens to fall upon it, without danger and the increafe of natural accidents. But when this maffe and burden of humors is thrust backe into the bodie, it is then ruled and kept from doing harme by the strength and benefit of the faculties remaining in the bowels and the native heat.

CHAP. III.

Of the three kindes of Bandages necessarie in fractures.

Two sorts of Ligatures are principally necessarie for the Surgeon, according to Hippocrates, by which the bones ifwell broken as dilocated may be held firme when they are restored to their natural place.

Of thefe some are called Hypodermic, that is, Under-binders; others, Hypodermide, that is, Over-binders. There are sometimes but two under-binders used, but more commonly three. The first must first of all be cast over the fracture, and be wrapped about some three or foure times about, then the Surgeon must make and observe the figure of the fracture, for as that shall be, so must he vary the manner of his binding. For the ligature must be drawne strait upon the side opposite to that whereeto the luxation or fracture most inclines, that so the bone which stands forth may be forced into its seat, and so forced may be more firmly theretaken. Therefore if the right side be the more prominent or standing forth, thence must you beginne your ligation, and so draw your ligature to the left side. On the contrary, if the left side be more prominent, beginning there, you shall goe towards the opposite side in binding and rowling it. Herefore would I require a Surgeon to be Ambidexter, (i.e.) having both his hands at command, that so he may the more exquisitely performe such variety of ligations. But let him in rowling bend or move this first ligature upwards, that is, towards the bodie, for the former reasons. But neyther is this manner of ligation peculiar to fractures, but common to them with luxations; for, into what part soever the luxated bone flew, when it is restored, that side must be bound the more loofely and gently whereas it departed, and that on the contrary more hard unto which it went. Therefore the ligature must be drawn from the side whereunto the bone went, so that on this side it bee more loose and soft, and not straitly presset with boulsters or rowlers, that so it may
Concerning Bandages, or Ligatures.

may be more inclined to the side opposite to the luxation. If the ligation be otherwise performed, it succeeds not well, for the part is relaxed, and moved out of its natural seat; wherefore there will be no small danger, left the bone be forced out againe, and removed from its place, whereinto it was restored by art and the hand. Which thing Hippocrates so much feared, that on the contrary he willed that the set bone should be drawn somewhat more unto the part contrary to that whereunto it was driven by force, than the natural and proper site thereof should require. But to returne to our former discours of the three Ligatures: The first under-binder being put on, wee then take the second, with which wee in like fort begin at the fracture, but having wrapped it once or twice about there, for that, as we formerly said, wee must not force backe, and preffe so much blood towards the extremities, as wee must doe towards the body and bowels. Wherefore this Ligature shall be drawn from above downe-wards, gently straining it to press forth the blood contained in the wounded part: When by rowling you shall come to the end of that part, then you shall carry back againe that which remains thereof, to wit, upwards, but otherwise you may take the third under-binder, whereas with you may beginne to rowle, whereas you left with the second, and you may carry it thus, rowling it from below upwards. These under-bindings thus finifhed, apply your boulffers, after them your over or upper-bindings, which are oft times two, but sometimes three. The first hath two heads, and is wrapped both from the right hand and the left, for the preservation of the first under-binder and the boulffers, and reforting the muscles to their native figure. The two other which remaine, consist of one head, & the one of them must be rowled from below upwards, the other from above downwards, after such a manner, that they may bee directly contrary to the under-binders; as if they were rowled from the right hand, then these must be from the left. Now this is the manner of Hippocrates his Ligations, which, for that it is now growne out of use, we must here set downe that which is in common use. They doe not at this time use any over-binders, but that which we termed the third under-binder serves our Surgeons in stead of the three forementioned over-binders. Wherefore they carry this third under-binder, wrapped from below upwards (as we formerly said) contrary to the first and second under-binder, as if these begunne on the right side, this shall be rowled from the left, and shall end whereas the first under-binder ended. And you must not only draw it indifferently hard, but also make the spires and windings more rare. This third rowler is of this use in this manner of Ligation, that is, it restores the muscles to their native figure, from whence they were somewhat altered by the drawing and rowling of the two former Ligatures. But you must alwaies have regard, that you observe that measure in wrapping your Ligatures, which reason, with the sense of the patient, and ease in suffering, prescribes, having regard that the tumor become not inflamed. Alfo the habit of the body ought to prescribe a measure in Ligation: for tender bodies cannot away with so hard binding as hard. Verily, in fractures and luxations, the humors by too strait binding are pressed into the extreme parts of the body; whence grievous and oft times enormous Oedemas proceed. For healing whereof the Ligature must bee loofed, and then the tumified parts pressed by a new rowling, which must bee performed from below upwards, and fo, by forcing the matter of the Tumor thither, it may be helped; for there is no other hope or way to drive the humor backe againe. He which doth this, forfakes the proper cure of the diseafe, fo to refift the symptome, which the Surgeon shall never refufe to doe, as often as any necifarie caufe shall require it. For this cause Hippocrates bids, that the Bandages bee loofed every three dayes, and then to foment the part with hot water, that so the humors, which (drawne thither by the vehemency of paine) have settled in the part, may be disolved and dispersed, and itching and other fuch like symptomes prevented. The feare of all accidents being past, let the Ligation bee sooner or later loofed, and more flacked than it formerly was accustomed; that so the blood and laudible matter, wherof a Calme may ensue, may flow more freely to the affected part.
Concerning Bandages, or Ligatures.

Chap. III.

Of the binding up of Fractures associated with a wound.

It sometimes happens, that a Fracture is associated by a wound, and yet for all this it is fit to bind the part with a Ligature, otherwise there will be no small danger of swelling, inflammation, and other ill accidents, by reason of the too plentiful flux of humors from the neighbouring parts. But it is not fit to endeavour to use that kind of binding which is performed with many circumvolutions or wrappings about. For, if the wound be not drest every day, the part must each day necessarily be stirred, and the Ligature, consisting of so many windings, loosed; which thing will cause pain, and consequently hinder the knitting and uniting which is performed by reit. Therefore this kind of binding may be performed by one only rowling about the wound, and that with a rowler which consists of a twice or thrice doubled cloth, made in manner of a bolster, and sewed with as much convenience as you can, that it may be so large as to encompass and cover all the wound, for these reasons, which shall be delivered at large in our Threfife of Fractures. But if the wound runne long-ways, let the bolster and splints be applied to the sides of the wound, that the lips of the wound may be pressed together, and the contained flesh pressed forth. But if it be made over-thwart, we must absteine from bolster and splints: for that, in Galens opinion, they would dilate the wound, and the purulent matter would be pressed out, and cast back into the wound.

Chap. V.

Certaine common precepts of the binding up of Fractures and Luxations.

In everie Fracture and Luxation, the depressed, hollow and extenuated parts, such as are neere unto the joints, ought to be filled up with bolster and cloaths put about them, so to make the part equal, that so they may be equally and on every side pressed by the splints, and the bones more firmly contained in their places. So when the knee is bound up, you must fill the ham or that cavity which is there, that so the ligation may be the better and speedier performed. The same must be done under the armpits, above the heels, in the arm near the wrists, and to conclude, in all other parts which have a conspicuous inequality by reason of some manifold cavities. When you have finished your binding, then enquire of the patient, whether he seem to be bound too strait. If he say, that he is unable to endure it so hard bound, then must the binding be somewhat slackned. For, too strait binding causes pain, heat, defluxion, a gangrene, and lastly, a phæcell or mortification: but too loose is unprofitable, for that it doth not contain the parts in that state we desire. It is a signe of a just ligation that is neither too strait nor too loose, if the ensuing day the part be fwole with an oedematosus tumor, caused by the blood pressed forth of the broken place, but of too strait ligation, if the part be hard fwole; and of too loose, if it bee no whit fwole, as that which hath pressed no blood out of the affected part. Now if a hard tumor, caused by too strait binding, trouble the patient, it must presently be loosed, for feare of more grievous symptomes; and the part must be fomented with warme Hydræum, and another indifferent, yea verily, more loose ligature must be made in stead thereof, as long as the paine and inflammation shall continue; in which time and for which cause, you shall lay nothing upon the part which is any thing burdenome. When the patient begins to recover, for three or foure dayes space, especially if you find him of a more compact habit and a strong man, the ligature must be kept firme and not loosed. If on the third day, and so untill the seventh, the spires or windings be
Concerning Bandages, or Ligatures.

Why we must make more flat ligature on the broken parts.

be found more loose, and the part affected more slender, then wee must judge it to be for the better. For hence you may gather, that there is an exprefion and digeftion of the humors, causmg the tumor made by force of the ligation. Verily, broken bones fitly bound up, are better set, and more firmly agglutinated, which is the caufe, why in the place of the fracture the ligation must bee made the ftrailer, in other places more loofely. If the fractured bone stand forth in any part, it must there be more ftraitly preffed with bouflers and fplints. To conclude, the feventh day being past, we must bind the part more ftraitly than before: for that then inflammation, paine, and the like accidents, are not to bee feared. But thefe things which we have hitherto fpoken of the three kinds of Ligatures, cannot take place in each fractured part of the body, as in the chaps, collar-bones, head, nofe, ribs. For, feeing fuch parts are not round and long, a Ligature cannot be wrapped about them, as it may on the arms, thighs, and legs, but only bee put on their outsides.

CHAP. VI.

The ufe for which Ligatures serve.

The firft benefit of Ligatures.

That which wee have formerly delivered, you may understand that Ligatures are of ufe to restore those things which are separatd and moved forth of their places, and joyne together those which gape, as in fractures, wounds, contusions, fireous ulcers, and other like affecs against nature, in which the folution of continuinflands in need of the helpe of Bandages, for the reparation thereof. Besides alfo, by the helpe of Bandages thefe things are kept at under or separatd, which otherwise would grow together, against nature; as in burns, wherein the fingers and the hams would mutuallly grow together; as also the arme-pits to the chests, the chin to the bread, unlesse they be hindered by due Ligation. Bandages doe alfo conduct to refreh emaciated parts: wherefore if the right legge were for want of nourishment, the left legge, beginning at the foote, may bee conveniently rowled up even to the groine. If the right arme confume, binde the left with a ftrait Ligature, beginning at the hand, and ending at the arme-pit. For thus a great portion of blood from the bound-up part is fent back into the vena cava, from whence it regurgitates into the almoft empty veflels of the emaciated part. But I would have the found part to bee fo bound, that thereby it become not painefull; for a dolorifick ligation caufes a greatee attraction of blood and fpirits, as alfo exercline: wherefore I would have it during that time to bee at ref, and keep holy-day. Ligatures alfo conduete to the stopping of bleedings: which you may perceiue by this, that when you open a veine with your lancet, the blood is prefently fted, laying on a boufler and making a ligature. Allo Ligatures are ufcfull for women prefently after their delivery, for their womb being bound about with Ligatures, the blood whereby their womb was too much moistened, is expe1led, the strength of the expulfive facultie being by this means stirred up to the expulfion thereof; and it alfo hinderes the empty wombe from being lifone up with winde, which otherwife would prefently enter thereinto. This fame Ligature is a helpe to fuch as are with childe, for the more easie carrying of their burden; especially thofe whose Childe lyes fo farre dowwards, that lying as it were in the den of the hipples, it hangs betweene the thighs, and fo hinderes the free going of the mother. Therefore the woman with childe is not only eafeed by this binding of her wombe with this Ligature, which is commonly termed, the navill Ligature; but alfo, her childe being held up higher in her wombe, the hath freerer and more liberty to walke. Ligatures are in like fort good for evulsion and derivation: as alfo for holding of medicines which are laid to a part, as the necke, breafh or belly. Lastly, there is a triple ufe of Ligatures in amputation of members, as arme and legges. The firft to draw and hold upwards the skinnie and muscles lying under it, that the operation being performed, they
Concerning Bandages, or Ligatures.

Concerning Bandages, or Ligatures.

they may, by their falling down again, cover the ends of the cut-off bones; and so by that means help forwards the agglutination and cicatrization; and when it is healed up, cause the lame member to move more freely, and with less pain; and also to performe the former actions, this, as it were, cullion or boulster of malleous flesh lying thereunder. The second is, they hinder the bleeding by pressinge togethee the veins and arteries. The third is, they by strait binding intercept the free passage of the animal spirits, and so deprive the part which lies thereunder of the sense of feeling, by making it, as it were, stupid or numb.

Chap. VII.

Of Boulsters or Compresses.

Boulsters have a double use; the first is to fill up the cavities and those parts which are not of an equal thickness to their ends. We have examples of cavities in the Arme-pits, Clavicles, Hams & Groines; and of parts which grow small towards their ends, in the armes towards the wresits, in the legges towards the feet, in the thighs towards the knees. Therefore you must fill these parts with boulsters and linen cloathes, that so they may be all of one bignesse to their ends.

The second use of boulsters is to defend and preserve the first two or three Rowlers or Under-binders, the which we layd before must be applyed immediately to the fractured part. Boulsters, according to this twofold use, differ amongs themselves, for that when they are used in the first mentioned kind, they must be applyed athwart; but when in the latter, long-ways or down-right.

You may also use Boulsters, lest the too strait binding of the Ligatures cause paine and trouble to the new set bones. A three or four times doubled cloth will serve for the thickness of your Boulsters, but the length and breadth must bee more or leffe, according to the condition of the parts and disease for which they must be applyed.

Chap. VIII.

Of the use of Splints, Junkes, and Cases.

Having delivered the uses of Ligatures and Boulsters, it remaines that wee say somewhat of the other things, which serve to hold the bones in their places; as Splints, Junkes, Cases, and such other like. Splints are made and composed of part bord, of thin splinters of wood, of leather, such as thoo-foales are made with; of the rindes of trees, or places of Latin, or lead, and such other like, which have a gentle and yeelding stiffness; yet would I have them made as light as may bee, lest they by their weight become troublesome to the affected part. But for their length, breadth, and number, let them be fitted agreeable to the part whereto they must bee used. Let also their figure be straight or crooked according to the condition of the member whereto they must be applyed. You must have a special care, that they runne not so farre as the swellings out, or eminencies of the bones; as the ancles, knees, elbows, and the like, left they hurt them by their pressure: also you must have a care, that they be smaller at their ends, and thicker in their middles, whereas they lye upon the broken bone. The use of Splints is, to hold fast and firme, that they may stir no way the broken and luxated bones, after they bee set and reforted to their places. That they performe this use, it is fit there be no thicke boulsters under them, nor over many rowlers; for so through so thick a space, they would not so strictly preffe the part. Junkes are made of thickes the bignesse of ones finge, wrapped about with rubies, and then with linen cloth; they are principally used in fractures of
of the thighs and legs. Cases are made of plates of Latin, or else of some light wood; their use is, to contain the bones in their due figure, when the patient is to be carried out of one bed or chamber into another, or else hath need to go to stool: lastly, if we must rest somewhat more strongly upon the broken or luxated members, these Cases will hinder the bones from flitting or flying out on the right side or left, above or below, we sleeping or waking, being willing or unwilling; and in like sort left being not as yet well knit, or more loosely bound up for fear of pain, inflammation, or a gangrene, they hang down, fall, or fly in funder by reason of the inequalities of the bed. Such Cases, Junkes, and the like, which serve for restoring and fast holding of broken and luxated bones, we may, according to Hippocrates his mind, call them in general Gloscomia. All which things, the yong Surgeon, which is not as yet exercized in the workes of Art, can scarce tell what they are. But in the mean time, whilest that hee may come to bee exercized therein, or fee others performe these operations, I, as plainely as possibily I could, have in words given him their portraiture or shape.

The end of the fourteenths Booke.
OF FRACTURES.

THE FIFTEENTH BOOKE.

CHAP. I.

What a Fracture is, and what the differences thereof are.

Fracture, in Galen's opinion, is the solution of continuitie in a bone, which by the Greeks is called Catagma. There are many forts of hurting or offending the bones: as the drawing them to, luxation, or putting them out of joint; their unnaturall growing together, their cutting or dividing a-funder; contusion, abcefe, putrefaction, rottenneffe, laying bare the periosium being violated or lost; and lastly, that whereof we now treat, a Fracture. Again, the varieties of Fractures are almost infinite. For one is complete and perfect, another imperfect; one runnes long-wise, another transverse, another oblique; one while it is broken into great pieces, another while into little and small scales, which have either a blunt, or else a sharp end, and pricke the adjacent bodies of the muscles, nerves, veins or arteries. It somtimes happens, that the bone is not broken into splinters, that is, long-ways, but together, and at once into two pieces overthwart, which Fracture is called Raphanedon, that is, after the manner of a Raddish.

A Fracture is made Carydon, or like a nut, when as the bone flyes into many small pieces, severed each from other, as when a Nut is broken with a hammer or mallet upon an Anvile; Which fracture is also termed Alphitidon, by reason of the resemblance it hath to meal or flour; and such is often seene in fractures made by bullets, shot out of guns and such fiery engines. Contrary to these are those fractures which are called Schidacidon, as rent into splinter, or after the manner of a board or piece of timber, that is, right downe, and alongst the bone: And these fractures are either apparent to the eye, or else not apparent, and therefore called Capillarie, being so small, as that they cannot be perceived by the eye, unlefe you put inke upon them, and then have them with your Scrapers. Sometimes the bone is only pressed downe by the stroke, sometimes on the contrarie it flyes up, as if it were vaulted. They call it attrition, when the bone is broken into many small fragments, and as it were scales or chips. The fragments of fractured bones are somtimes smooth and polished, otherwhiles unequall, and as it were tharpe and rough with little teeth, or prickes. Some fractures touchely the surface of the bone, fetching off only a scale, other times change not the firc of fractured bones, but only cleaves them length-waies, without the plucking away of any fragment; otherfome penetrate even to their marrow.

Furthermore some Fractures are simple and alone by themselves; otherfome are accompanied with a troop of other affects and symptomes, as a wound, hemorrha-gye, inflammation, gangrene, and the like. Hereunto you may alfo add the differences
Concerning Fractures.

The causes of fractures.

The first sign of a broken bone.

Another.

A third.

E may know by evident signs that a bone is broken: the first whereof, and most certain, is, when by handling the part which we suspect to be broken, we feel pieces of the bone severed a-funder, and hear a certaine crackling of these pieces under our hands, caused by the attrition of the shattered bones. Another signe is taken from the impotency of the part, which chiefly betrays its selke, when both the bones, the legge, and brace-bones, the ell and wand are broken. For if only the brace-bone or wand be broken, the Patient may go on his legge, and stirre his arme: for the brace-bone serves for the sustaining of the muscles, and not of the bodie, as the legge bone doth. The third signe is drawne from the figure of the part changed besides nature: for it is there hollow, from whence the bone is flowne or gone, but gibbous or bunching out whither it is runne. Great paine in the interim torments the patient by reason of the wronged perossum, and that membrane which involves the marrow and the sympathie of the adjacent parts which are comprifed or pricked.

Of Prognosticks to be made in Fractures.

Why bones are more hormone in hot weather.

Why the solution of continuity in bones is not so easily repaired.

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Concerning Fractures.

L I B. 15.

broken part is seen to be more firm and hard than it is in any other; therefore that usual lying in Physick is not without reason; That rest is necessary for the uniting of broken bones. For the Callus is easily dissolved, if they bee moved before their perfect and solid agglutination. The matter of a Callus ought to be indifferent and laudible in quantitie and qualitie, even as blood which flows for the regeneration of the lost flesh in wounds. It is fit, that there may be sufficient matter for such a Callus, that the part have a laudible temper, otherwise there either will be no Callus, or certainly it will grow more slowly. Fractures are far more easily repaired in young bodies than in old; for in thefe there is plenty of the primigenious and radical moisture, that is laudably holding and glutinous, and in the other there is flore of watriffh and excrementitious. By this you may easily conjecture, that you cannot certainly set downe a time necessarie for the generating a Callus; for in some it happens later, in some sooner: the caufe of which variety is also to be referred to the constitution of the yeare and region, the temper and diet of the Patient, and manner of Ligation. For, those Patients whose powers are weake, and blood watriffh and thin, in thefe the generation of a Callus use to be more flow: On the contrarie, strong powers haffen to agglutinate the bones, if there be plenty of grosse and villous matter, whereby it comes to passe, that meats of grosser nutriment are to bee used, and medicines applied which may helpe forwards the endeavour of nature, as we shall declare hereafter. When the bones are broken near unto the jointes, the motion afterwards use to be more difficult, especially if the Callus, which is subfittuted, be somewhat thicker and bunching forth. But if, together with the violence and force of the Fracture, the jointes shall bee broken and bruifed, the motion will not only bee looff, but the life brought in danger, by reason of the greatnesse of the inflammation, which usually happens in such affections, and the excess of paine in a tendinous body. These fractures wherein both the bones of the arme or legge are broken, are more difficult to cure, because that which remains whole, serves the other for a reft or fly to which it may lean. Moreover, there is longer time required to subfittute a Callus to a great bone, than to a little one. Against these bones which are more rare and fpongie, are sooner glued together by the interposition of a Callus, than these which are denfe and solid. A Callus sooner growes in fanguine, than in cholerick bodies. But broken bones cannot be so happily agglutinated, nor restored in any body, but that alwaies some asperity or unequall protuberance may bee seen on that part where the Callus is generated. Wherfore the Surgeon ought to make artificiall Ligations, that the Callus may not stand out too far, nor sinke downe too low. That Fracture is leaft troublesome which is fimple; on the contrarie, that is more troublesome which is made into fragments, but that is most troublefome and worft of all which is in small and sharp fragments, because there is danger of convulsion by pricking a nerve, or the periostium. Sometimes the fragments of a broken bone keep themselves in their due place: they also oftentimes fly forth thereof, so that one of them gets above another; when it happens, you may perceive an inequality by the depreflion of the one part and the bunching forth of the other, as also paine by the pricking: besides the member is made fliorter than it was, and more swolne by the contraction of the muscles towards their original. Wherefore when a bone is broken, if you perceive anie thing fo deprefled, presently putting your hand on both sides above and below, stretch forth the bone as forcibly as you can, for otherwise, the muscles and nerves, stretched and contracted, will never of their own accord suffer the bones to be reftored to their proper feat and themselves. This extension must bee performed in the first dayes, for afterwards there will happen inflammation: which being present, it is dangerous to draw the nerves and tendons too violently, for hence would enue an impotitune, convulsion, gangrene and mortification. Therefore Hippocrates forbids you to defer such extension until the third, or fourth day. Fractures are thought dangerous, whole fragments are great, and fly out, especially in those bones which are filled with marrow on the inside. When broken or dislocated bones cannot be restored
Concerning Fractures.

In inflammations, the reflo- ring of the bone much not be at- tempted.

When inflam- ments, or en- gines are need- ily.

Three things to be performed in curing broken and disloca- red bones.

How to put the bones in their places.

Ch AP. IV.

O cure a broken and dislocated bone, is to restore it to its former figure and site. For the performance whereof, the Surgeon must propose three things to himself: The first is, to restore the bone to its place: The fe- cond is, that he contain or lay it being restored: The third is, that he hinder the increase of maligne symptoms and accidents; or else if they do happen, that then he temper and correct their present malignitie. Such accidents are paine, inflammation, a feaver, abscesses, gangrene and phaceall. For the first in- tention, you may easily restore a broken or dislocated bone, if prefently, as soon as the mischance is got, or else the fame day, you endeavour to restore it: for the biterneffe of paine or inflammation, which may trouble the patient, is not as yet vere great, neither is the contraction of the muscles upwards as yet very much or stubborn. Therefore first of all, the Patiente with his whole bodie, but efpecially with the broken or dislocated part, as also the Surgeon, muft bee in some place which hath good and sufficient light. Then let truly and skilful attend- dants be there, good ligatures, and also, if need be, require, good engines. His friends which are present, let them fee and hold their peace, neither say, nor do any thing which may hinder the Work of the Surgeon. Then putting one hand above, that is, towards the center of the body, and the other below, as near as he can to the part affected, let him fretch forth the member: for if you lay your hand any distance from the part affected, you will hurt the found part by too much compression, and therewith the bones will sooner and more readily be restored to their former state. For when the bone is eyther broken or out of joynt, there is a contraction of the muscles towards their original, and consequently of the bones by them, as it is observed by Galen. Wherefore it is impossible to restore the bones to their former feat, without the extension of the muscles. But the part being thus extended, the broken bones will sooner and more easily be restored to their former state. Which being restored, you shall presently with your hand preffe it downe, if there be any thing that bunches or stands out. And lastly, you shall binde it up, by applying boultiers and splints as shall bee fit. But if the bone bee dislocated or forth of joynt, then presently after the extension thereof, it will be requisite to bend it somewhat, and to draw it in. The Surgeon is sometimes forced to use engines for this work, especially if the luxation be inveterate, if the broken or luxated bones be great; and that in strong and ruffick bodies, and such as have large joyntes: for that then there is need of greater strength, than is in the hand of the Surgeon alone. For, by how much the muscles of the Patient are the stronger, by fo much will they bee contradicted more powerfully upwards towards their originals. Yet have a care that you extend them not too violently, lest by rending and breaking a- funder the muscles and nerves, you caufe the forementioned symptoms, paine, con- vulsion,
vulson, a paffe and gangrene: all which sooner happen to strong and aged bodies, than to children, eunuches, women, youthes, and generally all moyst bodies, for that they are lesse hurt by violent extension and pulling, by reason of their native and much humiditie and softhenesse. For thus skins of leather, moistened with any liquor, are easily stretched and drawn out as one pleaseth; but such as are dry & hard, being lesse tractable, will sooner rend and teare, than strech further out. Therefore the Surgeon shall use a mean in extending and drawing forth of members, as shall be most agreeable to the habits of the bodies. You may know the bone is set, and the letting performed as is fit, if the paine be allayed; to wit, the fibres of the muscles, and the other parts being restored to their former state, and all compreccion, which the bones moved out of their places have made, being taken away; if, to your feeling there bee nothing bunching out, nor rugged, but the surface of the member remaine smooth and equal; and lastly, if the broken or dislocated members compares with its opposite in the compofure of the joynts, as the knees and ancles answer justly and equally in length and thicknesse. For which purpose it must not suffice the Surgeon to view it once, but even as often as he shall desire it.

For it may happen, that the bone which is well set, may by some chance, as by the Patients unconsiderate turning himselfe in his bed, or as it were a convulsiv twitching of the members or joynts while he sleepeas, the muscles of their owne accord contracting themselves towards their originals, that the member may againe fall out; and it will give manifest signes thereof by renewing the paine, by pressing or pricking the adjacent bodies: which paine will not cease, before it bee restored to its place: and hereof the Surgeon ought to have diligent care. For if, whilst the Callus is in growing, one bone ride over another, the bone it selues will afterwards be so much the shorter, and consequently the whole member; so that if this error shall happen in a broken legge, the Patient will hate ever after, to his great griefe, and the Surgeons shame. Wherefore the Patient shall take heed, as much as in him lies, that he hire not the broken member, before that it be hardened. Such diligent care needes notbe had in dislocations. For thes set, and artificially bound up, doe not afterwards so easilly fall forth as broken bones.

The second scope is, that the bones which shall be restored may bee firmeely kept in their flate and place. That shall be done by Bandages; as ligatures, boulsters, and other things, whereof hereafter we shall make particular mention. Hither tend proper and fit medicines, to wit, applying of oyle of Roses with the whites of Eeges, and other like repelling things; and then resolving medicines, as the present necessitie shall require. It will be convenient, to moisten your rollers and boulsters in oxycrat for this purpose, or else in Rose vinegar, if the Fracture be simple, or with red wine, or the like liquor warme (in Galens opinion) if a wound bee joyned to the fracture; and it will be fit to moisten fractures ofterne in Summer: For so the part is strengthned, the defluxion being repelled, whereby the inflammation and paine are hindred. You must desist from humedating and watering the part when the symptomes are past, lest you retard the generating of a Callus; for which you must labour by these meanes which we shall hereafter declare. To this purpose also conduces the rest and lying of the part in its proper figure and place as accustomed in health, that so it may the longer remaine in the same place unfortuned. Besides also, it is expedient then only to dreffe the part, when it is needfull, & with those things that are requisite, shunning, as much as may be, inflammacion and paine. That figure is thought the best, which is the middle, that is, which containing the muscles in their fire, which is without paine; so that the Patient may long endure it with out labour or trouble. All these things being performed, the Patient must be asked, Whether the member be bound up too straitly? If hee anfwer, No, (unlesse peradventur a little upon the fracture or luxation, for there it is fit it shoule be more straitly bound) then may you know that the binding is moderate. And this firm and ligation is to bee kept in fractures without losong for three or foure dayes space, unlesse peradventure paine urge you to the contrary. In dislocations the same binding may bee kept for seven or eight dayes, unlesse by chance some symptomes may happen, which may force us to open it before that time: for this time for loosing of Ligatures in fractures and dislocations.
Concerning Fractures.

By what means you may perform the third intention in curing fractures and dislocations, which is, the healing and correction of accidents and symptoms.

Four means to hinder accidents.

The causes and differences of itching.

Remedies against itching.

Hat we may attain unto this third scope, it is requisite we handle as gently and without paine, as we may, the broken or dislocated member; we drive away the defluxion ready to fall downe upon the part by medicines, repelling the humour, and strengthening the part; wee, by appointing a good diet, hinder the begetting of excrements in the bodie, and divert them by purging and phlebotomie. But if these accidents be already present, we must cure them according to the kind and nature of each of them: for they are various. Amongst which is reckoned itching, which in the beginning torments the Patient: this ariseth from a collection and suppression of subacrid vapours, arising from the blood, and other humors under the skin. Whence a light biting, which causeth a gentle itch, or else a more grievous and acrid one, from whence (in Galens opinion) proceeds a painfull itching. Wherefore such matter, as the cause, being evacuated, all itching ceaseth. But this cannot easily and freely be evacuated and breathed out, because the pores of the part are shut up, and as it were oppreased with the burden of the emplastries, boulters, and ligatures, which are put about the part. Hereunto may be added, that the part itself doth not so easily performe and enjoy its wonted faculties and actions: by which it cometh that the heat thereof is more languide than may suffice to dissipate the fuliginous matter there collected. Wherefore it will be convenient to loose the ligatures everie third day, that, as by loosing their ties, their fanious and fuliginous excrements, that up under the skinne, may freely passe forth, left in continuance they should fret and ulcerate; as it happens to most of those who provide not for it by loosing their ligatures. Besides also, the part must bee long fomented with hot water alone, or else with a decoction of sage, chamomile, roes, and melilot made in wine and water: for long fomenting attenuates and evacuates, but shorter fils and mollifies, as it is delivered by Hippocrates. Also gentle frictions, performed with your hand, or a warme linen cloath upwards, to the right side and left, and circularly to everie side, are good. But if the skinne be already risen into blisters, they must be cut, left the matter contained thereunder may corrode and ulcerate the skinne: then must the skinne be annointed with some cooling and drying medicine: as, Ung. album Camphoratum Rhasis, Deciseraum rubrum, Ung. Fomentum vinumque, adding thereto the powder of a rotten potle, or prepared Tinct. or the like. Other accidents more grievous than these, doe often happen, but we will treat of them hereafter. But if the scales of the bone underneath bee quite severed from the whole, then must they be prefently taken forth, especially if they prick the muscles: But if the bone be broken into splinters, and so prominent out of the wounded flesh that it cannot be restored into its seat, it must be cut off with your cutting mallets, or parrats beake, as occasion shall offer its selfe. In the interim, you must have a care that the part enjoy perspiration, and by change of place and riling, now and then it may be as it were ventilated: also you must see that it be not over-burdened, neither too strait bound, otherwise it will be apt to inflammation. Thus much concerning fractures and dislocations in general: now we must defend to particulars, beginning with a fracture of the Nose.

Concerning Fractures.

By what means you may perform the third intention in curing fractures and dislocations, which is, the healing and correction of accidents and symptoms.

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Concerning Fractures.

Chapter VI.

Of the Fracture of the Nose.

The Nose is grizzly in its lower part, but bony in the upper. Wherefore it suffers no fracture in the grizzly part (unless peradventure a Sedex) but only a depression, distortion or contusion. But a fracture often happens to the bony part, and so great a depression to the in ner side, that unless it be provided for by diligent restoring it, the nose will become flat, or wrested aside, whence there will be difficulty of breathing. That this kind of fracture may be restored, that bone which stands too farre our must be pressed downe; but that which is depressed, must be lifted up with a spathe or, little slice handomely fashioned and wrapped about with cotton or a linen ragge, so to avoid pains. Therefore you shall hold the spathe in one hand, and reduce and order it with the other. The bone being restored, directories or tents of a convenient bigness shall be put into the nose; which tents shall bee made of sponge, or flaxse, or a piece of a beasts or sheeps lungs. For these things are soft, and do not only hinder the bones of the Nose that they fall no more, but also lift them up higher. And then the Nose shall be in some fort stayed with bouflures on each side, even untill the perfect agglutination of the bones, left the figure and straightness should be vitiated and spoild. I have oft times put golden, silver and leaden pipes into fractur'd noes, and fastned them with a thred to the Patients night cap, which, by one and the same means, kept the bones from being again depress'd, gave the matter free passage forth, and nothing hinder'd the breathing. In the mean time we must fee, that we do not preffe the Nose with too strait binding, unlef le peradventur forsome other thing perswade; lest they become euery too wide, too flat, or crooked. If any wound accompany the fracture, that shall bee cured after the same manner, as the wounds of the head. The fracture restored, the following medicine, which hath a facultie to repell and reprefle the defluxion, to strengthen and keep the part in its due posture, and to dry up and waft the matter which hath alreadie fallen downe, shall bee apply'd to the Nose, and all the other dry parts.

Neither shall you use any other art to cure the cartilagineous part of the nose being fractured. Wherefore Hippocrates terms that solution of continuitie that sent, as a fracture, as if it were in a bone, because he could finde no other name more fitly to exprefse it: for a gristle, next to a bone, is the hardeft of all the parts of our bodie. A Callus ues to grow in fractured noes, unleffe something hinder within the space of twelve or fifteene daies.

Chapter VII.

Of the Fracture of the lower Jaw.

He lower Jaw runnes into two, as it were, horns or tops: the one where-
Concerning Fractures.

The teeth in the mean while, if they be either shaken or removed out of their sockets, must be restored to their former places, and tied with a gold or silver wyar, or else an ordinary thread, to the next firme teeth, until such time as they shall be fastened, and the bones perfectly knit by a Callus.

To which purpose the ordered fragments of the fractured bone shall be stayed, by putting a flint on the outside, made of such leather as shoe soles are made; the midst thereof being divided at the Chin, and of such length and breadth as may serve the Jaw: then you shall make ligation with a ligature two fingers broad, and of such length as shall be sufficient, divided at both the ends, and cut long-waies in the midst thereof; that so it may engirt the chin on both sides. Then there will be four heads of such a ligature so divided at the ends, the two lower whereof being brought to the crown of the head, shall be there fastened and lowed to the Patients night-cap. The two upper drawne athwart shall likewise be fowed as artificially as may bee, to the cap in the nappe of the neck. It is a most certain signe, that the Jaw is restored and well set, if the teeth fastened therein stand in their due ranke and order. The patient shall not lye down upon his broken jaw, left the fragments of the bones should again fall out, and cause a greater defluxion. Unless inflammation, or some other grievous symptom, shall happen, it is strengthened with a Callus within twenty dayes; for that it is spongy, hollow, and full of narrow, especially in the midst thereof: yet sometimes, it heales more slowly, according as the temper of the patient is, which takes also place in other fractured bones. The agglutinating and repelling medicine, described in the former chapter, shall be used; as also others, as occasion shall offer it selfe. The Patient must be fed with liquid meats, which stand not in need of chewing, untill such time as the Callus shall grow hard, left the scarce or ill-joined fragments should fly insunder with the labour of chewing. Therefore shall hee bee nourished with water-grewel, ponadoes, callafes, barley creames, gellies, brothes, rare eggs, restaurative liquors, and other things of the like nature.

CHAP. VIII.

Of the Fracture of the Clavicle or Collar-bone.

The nature and kinde of the fractured Clavicle shall bee, so must the cure and restoring thereof be performed. But howsoever this bone shall be broken, always the end fastened to the shoulder and shoulder-blade, is lower than that which is joyned to the chest, for that the arm draws it down-wards. The collar-bone, if broken athwart, is more easily restored and healed, than if it be cloven long-waies. For, everie bone broken athwart doth more easily returne into its former state or form, whiles you lift it up on this or that side with your fingers. But that which is broken fchidactus, or into splinters, or long-waies, is more dificultly joyned and united to the ends and fragments: for those pieces, which were fet, will be plucked asunder, even by the least motion of the armes; and that which was knit with the shoulder, will fall downe to the lower part of the breast. The reason of which is, the Collar-bone is not moved of its selfe, but confoits in motion with the arm. In restoring this or any other fracture, you must have a care that the bones ride not one over another, neither be drawn nor depart too far in funder: therefore it will be here convenient, that one servant draw the arm backwars, and another pull the shouder towards him the contrarie way; for fo there will be made, as I may fo term it, a counter-extension. While which is in doing, the Surgeon with his fingers shall reftore the fracture, preffing downe that which flood up too high, and lifting up that which is preffed downe too low. Some, that they may more easily restore this kinde of fracture, put a clew of yarne under the Patients arme-pit; to fo to fill up the cavity thereof: then they forcibly preffe the elbow to the ribs, and then force the bone into its former form. But if it happen, that the ends of the broken bones shall bee so depreff,
Concerning Fractures.

Concerning Fractures.

depress, that they cannot be drawn upwards by the forementioned means: then the Patient be laid with his back, just between the shoulders, upon a pillow hard stuffed, or a tray turned with the bottom upwards, and covered with a ragge or some such thing. Then the servant shall fo long press downe the Patients shoulders with his hands, until the ends of the bones, lying hid and press'd downe, fly out and flow themselves. Which being done, the Surgeon may easily restore or let the fractured bone. But if the bone be broken so into splinters that it cannot be restored, and any of the splinters pricked and wound the skinne, and so cause difficulty of breathing, you then must cut the skinne even against them, and with your instrument lift up all the depressed splinters, and cut off their sharp points; so to prevent all deadly accidents, which thereupon may bee feared. If there be many fragments, they, after they are set, shall be covered with a knitting medicine made of wheat floure, frankincense, bote armenieke, sanguis dracmis, resina, made into powder, and mixed with the whites of eggs, putting upon it splints, covered with soft worne linnen ragges, covered over likewise with the same medicine, and then three bollsters dipp'd in the same; two whereof shall be laid upon the sides, but the third and thickest upon the prominent fracture, to represse it and hold it in. For thus the fragments shall not be able to thirre or lift themselves up further than they should, eyther to the right side or left. Now these Bollsters must be of a convenient thicke ffe and breadth, sufficient to fill up the cavities which are above and below that bone. Then shall you make fit ligature with a rowe, having a double head call croffe-wife, of a hands breadth, and some two ells and a halfe long, more or lefs, according to the Patients bodie. Now hee shall be so rowed up, as it may draw his arme somewhate backwards, and in the interim his arme-pits shall be filled with bollsters, especially that next the broken bone; for so the Patient may more easely suffer the binding. Also you shall with the Patient, that he of himselfe bend his arme backewards, and let his hand upon his hip, as the Country Clowens use to doe, when they play at leap-frogge. But how great diligence soever you use in curing this fort of fracture, yet can it scarce be performed, but that there will some deformity remaine in the part: for that a ligature cannot be rowled about the collateral bone, as it may about a legge or an arme. A Callus oft times grows on this bone, within the space of twenty daies, because it is rare and spongy.

CHAP. IX.

Of the fracture of the shoulder-blade.

He Greeks call that Omoplate, which the Latines terme Scapula, or Scapula patella, that is, the shoulder-blade. It is fastened on the backe to the ribs, noeule, the Vertebræ of the chefte and necke, but not by articulation, but only by the interposition of muscles, of which wee have spoken in our Anatomic. But on the forepart it is articulated after the manner of other bones with the collar-bone, the shoulder, or arme-bone: for with its procefs, which represents a pricke or thorne, and by some, for that it is more long and prominent, is call'd Acromion, (that is, as you would faie, the top or spire of the said shoulder-blade) it receives the Collar-bone. Therefore some Anatomifts, according to Hippocrates as they suppofe, call all this articulation of the Collar-bone with the hollowed procefs of the shoulder-blade, Acromion. There is another procefs of the said Blade-bone, called Cervice omoplate, or the necke of the Shoulder-blade: this truely is very short, but ending in a broad and finuated head, provided for the receiving of the Shoulder or arme-bone. Not farre from this procefs is another, called Coracoide, for that the end thereof is crooked like a Crows beake. This keeps the shoulder-blade in its place, and conduces to the strength of that part. The shoulder-blade may be fractured in any part thereof, that is, eyther on the ridge, which runs like a hill, alongst the middile thereof, for its frailty, as wee fee in the Vertebræ of the backe. So alfo in the broader part thereof it may bee thruf in and depresst.
Concerning Fractures.

We know the spine orridge of the Shoulder-blade to be broken, when a dolorifice inequality is perceived by touching or feeling it. But you may know, that the broader or thinner part thereof is depréft, if you feel a cavity, and a pricking paine molest the part, and if a nmmele trouble the arme, being stretched forth. The fragments, if they yet stick to their bone, and do not pricke the flesh, must be reforted to their state and place, and there kept with agglutinative medicines, and such as generate a Callus, as also with boulfters and rowlers fitted to the place. But if they do not adhere to the bone, or pricke the flesh lying under them, then must you make incision in the flesh over against them, that fo you may take them out with your Crowes beake. But although they flire up and downe, yet if they still adhere to the periostium and ligaments, (if so be that they trouble not the muscles by pricking them,) then must they not bee taken forth: for I have oftem more than once observed, that they have within some short time after grown to the adjacent bones. But if they, being wholly separated, doe not so much as adhere to the periostim, then must they neceffarily be plucked away; otherwife within some short space after, they will be driven forth by the strength of nature, for that they participate not any more in life with the whole. For that which is quicke, faith Hippocrates, ufed to expel that which is dead farre from it. The truth whereof was manifefted in the Marques of Villars, who at the battell of Dreux was wounded in his shoulder with a pistoll bullet, certaine splinters of the broken bone were plucked forth with the pecces of his harnefle, and of the leaden bullet; and within some short space after, the wound was cicatrized, and fully and perfcnaly healed.

But more than feven yeares after, a defluxion and inflammation arizing in that place by reafon of his labour in armes, and the heavinge of his armour at the battell of Mont-contour, the wound broke open againe; fothat many fivcrs of the bone, with the refiduc of the leaden bullet, came forth of themfelves. But if the fracture shall happen in the necke of the shoulder blade or dearticulation of the shouder, there is scarce any hope of recovery; as I have obferved in Anthony of Burbon, King of Navarre; Francis of Lorraine, Duke of Guife; the Count Rhingrave Philibert, and many other in thefe late civill warrs. For there are many large veffels about this dearticulation, to wit, the axillary veine and arterie, the nerves arifing from the Vertebra of the necke, which are thence difleminated into all the muscles of the arme. Befides, alfo inflammation and putrefadion arizing there are easily communicated by reafon of their neighbour-hood to the heart and other princail parts, whence grievous symptomes, and oft times death is selfe, ensues.

Chap. X.

Of the fracture and depression of the Sterno, or Breast-Bone.

The Sternum is sometimes broken, otherwiles only thruft in without a fracture. The inequality perceivable by your feeling, shews a fracture, as alfo the going in with a thruft with your finger, and the found or noise of the bones crackling under your fingers. But a manifest cavity in the part, a cough, spitting of blood, and dificultie of breathing by compreffion of the membrane inverting the ribs and the lungs, argue the depression thereof. For the restoring of this bone, whether broken or deprefed, the patient muft be layd on his backe, with a cushion stuffed with tow or hay under the vertebra of the backe, as we fet downe in the setting of the Collar-bone. Then a fervant shall lye strongly with both his hands on his foulders, as if he would preffe them downe, whilst the Surgeon, in the mean time preffeing the ribs on each side, fhall reffore and fet the bone with his hand; and then the formerly defcribed medicines fhall be applied for to hinder inflammation, and affwage paine; boulfters shall bee fitted thereto, and

Chap. X.

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Concerning Fractures.

Chap. XI.

Of the fracture of the ribs.

He true ribs, for that they are bonie, may be broken in any part of them.

But the bastard ribs cannot be truly broken unlesse at the backe bone, because they are onely bonie in that part, but grifilly on the forefide to-wards the breast-bone, wherefore there they can only be folded or crooked in. Thefe which are subject to fractures, may be broken inwards and outwards. But oft times it comes to paffe, that they are not absolutely broken, but cleft into splinters, and that sometimes inwards, but not outwards. Thus the fissure doth oft-times not exceed the middle substance of the rib, but sometimes it fo breaks through it all, that the fragments and splinters do prick and wound the membrane, which invells and lines them on the inside, and then there is great danger. But when the fracture is simple without a wound, compression, puncture of the membrane, and laftly, without any other symptom; then the danger is leaft. Therefore Hippocrates wisheth, that these, who are thus afflicted, fill themselves more freightly with meat; for that moderate repletion of the belly, is as it were) a certaine prop or stay for the ribs, keeping them well in their place and state; which rule chiefly takes place in fractures of the bastard ribs. For such as have them broken, usually feel themselves better after, than before meat. For empeinefle of meat, or of the stomack, makes a suspension of the ribs, as not underpropped by the meat.

Now that fracture which is outwardly, is farre easie to scale, than that which is inwardly; for that this pricketh the membrane or Pleura, and causeth inflammation, which may easilly end in an Empyema. Add hereunto, that this is not so easilly to be handled or dealt withall, as the other: whereby it commeth to passe, that it cannot be so easilly restored, for that these things cannot bee so fully and freely performed in this kinde of fracture, which are necessary to the setting of the bone, as to draw it out, hold it and joyn it together. It is therefore healed within twenty dayes, if nothing elfe hinder. The signes of fractured ribs are not obscure; for by feeling the grievous part with your fingers, you may easilly perceiue the fracture by the inegualitie of the bones, and their noyse or crackling, especially, if they bee quite broke asunder. But if a rib be broken on the inside, a pricking paine, far more grievous than in a Pleurifie, troubles the Patient; because the sharp splinters pricke the Costall membrane: whence great difficulty in breathing, a cough and spitting of blood ensue. For blood, flowing from the vessels broken by the violence of the thing causiing the fracture, is (as it were) sucked up by the lungs, and so by a dry cough carried into the weazond, and at length spit out of the mouth. Some, to pull up the bone that is quite broken and depreft, apply a cupping glasse, and that is ill done: for there is caueth greater attraction of humors, and excelle of paine by the preffure and contraction of the adjacent parts, by the cupping glasse: wherefore Hippocrates also forbids it. Therefore it is better to endeavour to re- store it after this following manner. Let the Patient lye upon his sound side, and let there be laid upon the fractured side an emplaiiter made of Turpentine, rosin, black pitch, wheat flour, salt and aloes, and spread upon a strong and new cloath. When it hath fluck there some time, then pluck it sluddenly with great violence from below upwards: for so the rib will follow together therewith, and bee pluckd and drawne upwards. It is not sufficient to have done this once, but you must

and a ligature shall bee made croffe-wayes above the shoulders, but that not too striate, let it hinder the Patients breathing. By these meanes, at the appointment of Anthony of Bourbon King of Navarre, cured Anthony Benand a Knight of the Order, who had his breast-plate bended and driven in, with an iron bullet flout of a Field-Piece, as also his feamen together therewith, and he fell down as dead with the blow; he did spitt blood for three months after I had set the bone: yet for all this he lives at this day in perfect health.
Concerning Fractures.

I B. 15.

must doe it often, untill such time as the Patient shall finde himselfe better, and to breathe more easilly. There will be much more hope of restitution, if, whilesthe Surgeon doe this diligently, the Patient forbear cunning, and hold his breath. Otherwife, if needst be, as if sharpe splinters with moll biting tormenting paine prick the Costall membrane overpried with many nerves, veins, and arteries, which run under the ribs, whence difficulty of breathing, spitting of blood, a cough and fever ensue; then the only way to deliver the Patient from danger of imminent death, is, to make incision on the part, where the rib is broken, that so laying it bare, you may disserne the pricking fragments, and take them out with your instrument, or else cut them off. And if you make a great wound by incision, then shall you few it up, and cure it according to the common rules of curing wounds. Now Diet, Phlebotomic and Purgation, which (as Hippocrates faith) are not very needfull in a limple fratee, for that there are no symptomes, which may require such remedies; yet, they, by reason of the complicated symptomes, as a convulsion, feaver, Empyema, and the like, must here be preferred, by the advice of the Physician which over-fees the cure. A Cerate, and other remedies fitting the occasion, shall be applyd to the grieved part: no other ligatures can be used, than such as are fit to hold fast and stay the local medicines. There is no other rule of site and lying, than such as is taken from the will and content of the Patient.

CHAP. XII.

Of certaine preternatural affe&s which ensue upon broken ribs.

Any symptomes ensue upon fractur'd and contus'd ribs: but amongst the reft, there are two which are not common, whereof we will treat in this place. The first is, the inflation, or rising up of the contus'd flesh, which also ensues upon light affe&s of the bone, which have bin neglected at the beginning. But the flesh is not meerly pouder'd up of its selfe, but also with a certaine phlegmatick, glutinous and visous humour gathering thereinto. The cause hereof is, the weaknesse of the digestive facultie of the part, occasioned by the strouke and distemper; which therefore cannot assimilate the nourishment flowing more plentifully than it was wont, cyther drawn thither by means of the pain, or sent thither by a blind violence of nature, stirred thither by a desire of its own preservation. Wherefore this halfe crude humor remaining there, raifereth much flatuling from its selfe, or else wrought upon by the weaker heat, it is resolved into cloudy vapours; whence it commeth to pass, that the flesh is swolne up in that place, and the skinnen on the contrary growes soft, as if it were blowne up with a quill. Therefore laying your hand thereon, you may heare the noyfe of the wind going forth thereof; and see a cavity left in the part, as it is usuallly seene in cedematous tumors. Unlesse you remede this inflation, there will ensue an inflammation, fever, abscefs, difficulty of breathing; and lastly, that second kind of affect, whereof we have determined to treat in this Chapter, to wit, the purrefaction, corruption, or blasting of the ribs. An abscefs, and the separation of the flesh from the bone, is the caufe hereof: for hence it commeth to passe, that the bone, depoyled of its naturall and fleshly cloathing wherewith it was cherisht, is easilly offended by the touch of the entering aire, which it never formerly felt, and so at length it becommeth(as it were) blistered; which when it happens, they spit up flesh, and so fall into a consumpation, and at length dye. To withstand all these inconve&niencies, you must, as speedily as you can, refoure the fractur'd bones by the formerly delivered meanes. And then this mucus tumor must be resolved by proper heating and difcussing medicines, and kept downe by boulsters and rowlers; that so the flesh may touch the bone, and cover it as it usually did. But the ligature shall not be made too firait, as to hinder the ribs from their wonted motion in expiration and inspiration. If the tumor degenerate into an Abscefs, it shalbe speedily opened,
Concerning Fractures.

Of the fracture of the Vertebrae, or Rack bones of the backe,
and of their processes.

The Vertebrae are some-whiles broken, other-whiles bruised, or strained on the inside, whereby it commeth to passe, that the membranes which invest the spinall marrow, as also the spinall marrow its selfe, are compressed and straitened, which cause many maligne accidents; which, whether they be curable or not, may be certainly foretold by their magnitude. Amongst these symptoms, are the slippiness, or numneffe and palfie of the armes, legs, fundament and bladder, which diminish, or else take away from them the facultie of senfe and motion; so that their urine and excrements come from them against their will and knowledge, or else are wholly suppressed. Which when they happen (faith Hippocrates) you may fore-tell that death is at hand, by reason that the spinall marrow is hurt. Having made such a prognosticke, you may make an incision, so to take forth the splinters of the broken vertebrae, which, driven in, press the spinall marrow, and the nerves thereof. If you cannot doe this, at least you shall apply such medicines as may affwage paine, and hinder inflammation; and then the broken bones shall be restored to their places, and contained therein by those means which we shall mention when we come to treat of the luxation of the spine. But if that the proceses only of the vertebra be broken, the fractures shall be put in their places, unleefe they bee quite fevered from their periostium. But if they bee fevered, you shall open the skinne and take them forth, and then drefle the wound as is fit. We understand, that onely the proceses of the vertebra are broken, if, in the abscence of the fore-mentioned symptoms of numnes and the palfie, you, laying your finger upon the grieved part, finde something, as a bony fragment, shaking and moving thereunder, with a certaine crackling noyse, and cavite, and depression; and then, if when the Patient holds downe his head, and bends his backe, hee finde farre more paine, than when hee stands up straight on his feete. For in flooping, the skinne of the backe is somewhat stretched forth, and extended, and also forced upon the sharpe Splinters of the fragments, whence proceeds a dolorificke solution of continuance, and a pricking; in standing straight up, on the contrary, the stretched skinne is relaxed, and consequentlie left molested by the sharpe fragments. The fractured proceses of the vertebrae easily heale, unleefe they bee associated with some other more grievous symptome which may hinder; such as is a certaine great contusion, and the like. For, as wee formerly sayd out of Hippocrates, All rare and spongic bones are knit by a Callus within a few dayes.
Concerning Fractures.

CHAP. XIV.

Of the fracture of the holy-bone.

What fracture of the holy-bone curable and what not.

 Concerning the fracture of the holy-bone.

Lso the Holy-bone in a certain part thereof, which may be easily healed, may be broken by the blow of bruifying things, as by a bullet shot out of a musket, as I have observed in many. But if the fracture violate, together with the vertebra thereof, the spinal marrow contained therein, then the Patient can scarce escape death, for the reasons shewed in the former Chapter.

CHAP. XV.

Of the fracture of the Rump.

The description of the Hipp.

He Rump is compos'd of foure bones: the first whereof hath a cavitie, wherein it receives the lowest vertebra of the Holy-bone: the other three are joyned together by Symphysi or Coalition, at the end of these hangs a certain small gristle. The fracture of these bones shall be cured by putting your finger into the Patient's fundament, and so thrusting it even to the fractured place. For, thus you may thrust the fragment forth, and fit and restore it to the rest of the bones by your other hand lying upon the backe. But that it may be the sooner healed, it is fit the Patient keep his bed, during all the time of the cure. But if there be a necessity to rise, he shall so sit in a perforated seat, that there may bee nothing which may press the broken part; and fitting remedies for healing fractures shall be applied, as occasion shall offer its selfe.

CHAP. XVI.

Of the fracture of the Hip, or Os Ilium.

The description of the Hip.

He Rump consists of three bones: The first is named Os Ilium, the Haunch-bone; the other, Os Ixoium, the Huckle bone; the third, Os pubis, the Share-bone. These three bones in men of full growth, are so fast knit and joyned together, that they can by no means be Separated; but in children they may be Separated without much ado. This bone may be broken in any part thereof, either by a stroke, or by a fall from high upon any hard body. You shall know the fracture by the same kind of signes, as you know others, to wit, paine, prickings, a depressed cavitie, and inequality, and also a numbness of the legge of the same side. The splinters of the bones (if quite broke off) must by making incision be taken away at the first dressing: in performance of which operation, you must have a care, that you hurt not with your instrument the heads of the muscles, nor any vessels, especially which are great; nor lastly, that large nerve which is sent into the muscles of the thigh and legge. On the contrary, such fragments as are not broken or severed from their periosteions, shall bee smoothened and set in order with your fingers, as is fitting. Other things shall be done according as art and necessity shall perwade and require.
Lib. 15.
Concerning Fractures.

Chap. XVII.

The description of the fracture of the Shoulder, or Arm-bone.

Of the fracture of the Shoulder, or Arm-bone.

He Arm-bone is round, hollow, full of marrow, rising up with an indiferent necke, and ending on the upper part into somewhat a thick head.

On the lower part it hath two processes, the one before, the other behind: between which there is (as it were) an half circle, or the cavity of a pulley, each end whereof leads into its cavity, of which one is interior, another exterior; that by these (as it were) hollow tops, the bending and extension of the arm might be limited: lest that the bone of the cubit, if the circle should have beene perfect, sliding equally this way and that way, might, by its turning, have gone quite round, as a rope runnes in a pulley, which thing would much have confused the motion of the Cubite. For so the extension, or bending it backe, would have beene equal to the necessarie bending it inwards. It is very expedient that a Surgeon know these things, that so he may the better know how to restore the fractures and luxations of this part. If one of the fragments of this broken bone shall lye much over the other, and the patient have a good strong bodie, then the arm shall be much extended, the Patient being to set upon a lowe seat, that he may not rife, when the fracture shall bee a setting, and so hinder the begunne worke: lest that the Surgeon may the more easilly performe his operation upon the Patient feared under him: yet Hippocrates, regarding another thing, would have the Patient to fit higher. But you must have a care, that the shoulderbone it selfe be drawne directly downwards, and the cubit so bended as when you put it into a scarse. For if any one set this bone, lifting the arm upwards, or otherwise extending it, then must it be kept in that posture: for otherwise, if the figure be changed, the setting will quickly bee spoyle, when as you come to put the arm in a scarse. Wherefore the Surgeon must diligently and carefully observe, that in setting a broken arm, hee put it in such a posture, that resting upon the breast, it looke downe towards the girdle. You must have a care in laying the splints, and rowling your ligatures, that they hurt not, nor preffe too hard upon the joynts.

For, in the opinion of Hippocrates, by the preflure of parts which are nervous, fleshlie, and consequently ended with exquisite fene, by the splints there is danger of most grievous paine, inflammation, and denudation both of the bone and nerve; but chiefly, if such compresion hurt the inner part, towards which the arm is bended: wherefore the splints made for this place must be the shorter. Therefore, after the Arme-bone is set, the arme shall bee laid upon the breast in a right angle, and there bound up in a scarse, left that the Patient, when he hath neede to stirre, spoyle and undoe the setting, and figure of the broken bone. But the arme must be kept in quiet, untill such time as the fragments shall bee confirmed with a Callus, which usually is in fortie dayes, sooner or later, according to the different constitutions of bodies.

Chap. XVIII.

Of the fracture of the Cubit, or the Ell and Wond.

It sometimes happeneth, that the Cubite and Wand are broken together and at once, and otherwhiles that but the one of them is fractured. Now they are broken euyther in their midft or ends; their ends (I say) which are euyther towards the elbow, or else towards the wret. That fracture is worst of all, wherein both the bones are broken, for then the member is made wholly impotent to performe any sort of action, and the cure is also more difficult; for the member cannot so easilly be contained in its state: for that bone which remains whole, serves.
Concerning Fractures.

The cure.

for a stay to the arm, and hinders the muscles from being drawn back, which usually draw back and shrinke up themselves, whensoever both bones are broken. Hence it is, that that fracture is judged the worst, wherein the Cubit or Ell bone is broken. But that is easiest of all, wherein onely the Wand is broken, for to the fractured part is sustained by the Ell bone: When both the bones are broken, there must bee made a stronger extension, for that the muscles are the more contracted. Therefore, whensoever either of them remaines whole, it doth more service in sustaining the other, than any eyther ligatures or splints, for that it keeps the muscles right in their places. Wherefore, after the bones shall be set and rowled up with ligatures and splints, the armes must bee so carried up in a carfe put about the necke, that the hand may not be much higher than the elbow, lest the blood and other humors may fall downe thereinto. But the hand shall be set in that posture which is betweene prone and supine, for so the Wand shall lye directly under the Ell, as we have read it observed by Hippocrates. The reason is, for so the supine figure or situation, both the bone and muscles are perverted: for first, for the bone, the Apophys, Glyoides and Oclearum of the Cubit, ought to be in an evenall plane, and to be seated each against other 3 which is not so in a supine figure, as wherein the Processus Glyoides of the Cubit is set against the inner proceffe of the arm bone. But in muscles, for that, like as the insertion and site of the head of a muscle is, such also is the site of the belly thereof, and lastly, such the insertion of the tayle thereof, but by a supine figure, the muscles arising from the inner proceffe of the arm bone and bending the cubit, shall have their tayle placed in an higher and more exterior site. In the interim, you must not omit, but that the Patients arm may, with as little paine as possibly you can, be bended and extended now and then, left by the too long rest of the tied up part, and the immision of its proper function, the bones of the joynt may be fowred together by the interposition, and as it were glue of the defluxion which falls abundantly into the joynt of the Ell bow, and neighbouring parts, whence the stiffnesse and unmoveablenesse thereof, as if there were a Callus growne there: from whence it may happen, that the arm thereafter may neither be bended, nor extended, which I have observed to have happened to many. Whereof also Galen makes mention, and calls this kind of vitiated conformation Ancyl and Ancylotes. If a wound also associate a fracture of the arm, then fee, that you put about it plates of Latind, or Paft-bord, and make a convenient Ligature, and that the fragments of the bones be kept in the same state wherein they were set and restored. Moreover, let him lay his arm upon a soft pillow or cushion, as the following Figure shewes you.

The figure of a fractured Arm, with a wound bound up, and seated, as it is.
Chap. XIX.

Of the fracture of a Hand.

He bones of the Wrist, and After-wrist, may be broken; but, in Hippocrates' opinion, chiefly by that kind of fracture which is called a 3edecafractura. Now if they shall happen to be broken, this shall be the manner of restoring them. Let the Patient lay forth his hand upon some even and smooth table, then let your servant stretch forth the broken bones, & the workman restore them thus extended, and put them in their proper places. But being restored, they must be kept in their places by such remedies as are used in other fractures; to wit, cerates, compressees, linen clothes, and splints. Now the fractured fingers shall be tyed or bound to their neighbours, that so they may the more easily, as bound to a stake, be kept in that place wherein they have been put by the hand of the Workman. But these bones, seeing they are of a rare and spongic nature, are in a short time and easily strengthened, or knit by a callus. These things being done, the hollowness or palm of the hand shall be filled with a Tennis ball, for thus the broken bones shall not only be more easily kept in their places, but also the fingers themselves shall be kept in a middle posture, that is, not wholly open, nor quite shut. If they be kept in any other figure, the ensuing callus will either deprave or quite abolish that action of the hand, whereby we take hold of any thing. The case stands otherwise with the fractured Toes; for they shall be kept straight and even out, lest they should hinder our going or standing.

Chap. XX.

Of the fracture of a Thigh.

It is a hard thing to bring the fragments of the broken thigh together to be set, by reason of the large and strong muscles of that part, which whilest they are drawn back towards their original, by a motion both natural and convulsive, they carry together with them the fragment of the bone, whereto they are inferred. Therefore, when as the strength of the hand was not sufficient, the Ancients used an instrument, called a galeocomium, whereof this is the figure.
In stead of this Glosocomium, you may make use of my pulley; for Hippocrates in this bone when it is broken, doth approve of extension to great, that although by the greatness of the extension the ends of the fragments be somewhat distant, an empty space being left betwixt; yet notwithstanding would he have ligature made. For it is not here as it is in the extensions of other bones, whereas the casting about of Ligatures keeps the muscles unmoveable: but here, in the extended thighs, the deligation is not of such force, as that it may stay and keep the bones and muscles in that state, wherein the Surgeon hath placed them. For, seeing that the muscles of the thigh are large and strong, they overcome the ligation, and are not kept under by it. The Surgeon, in letting it, shall also consider, that the thigh-bone is hollowed on the inner side, but gibbous on the outside; therefore it must be set in its native figure. Otherwise, if anie, unmindful of this consideration, would have it straight, he shall make his Patient halt all his life after: for thus also the ligation shall the more faithfully keep the fragments of the bone in their places. Moreover, compreffes shall be applied to the more slender and less protuberating parts of the thigh, as those which are next the ham and knee, that so the whole ligation may be alike, and consequently the more firm. Now ligatures, as we formerly noted, are ordained for three things. The first is, that the bones may bee kept in that state wherein they were set, until they be strengthened by a Callus. The second is, to hinder defluxion, which calmly falls into the broken and luxated parts, both by reason of paine, as also by weakness. The third is, to stay and hold fast the plasters and medicines which are applied. Inflammation is hindered by preventing and hindring the blood and other humours, ready to flow downe, from entering into the part, and by preffing those humours, which are preternaturally contained in the part, into the neighbouring parts above and below. Wherefore there must no small care be had of preparing ligatures, to wit, that they bee made of choicely and well woven cloth, yet not courfe or rough; and let them be of such length and breadth, as the Surgeon, persuaded by an artificiall conjecture, shall judge to be fit for the thickeft and length of the member, and greatest of the fracture: for ligatures ought to be of breadth to involve and cover all the fractured part, and a great part of that which is found. But seeing that in my Booke of Bandages, I have seemed chiefly to set downe and approve the manner of binding used by Hippocrates, now I think good here in this place to describe that which is in common use amongst our Surgeons.
**Concerning Fractures.**

Our Surgeons therefore at this day require three Ligatures for fractures, the first whereof they presently call upon the hurt part, whether broken or dislocated, or only strained, making the first wrappings upon it, so that they moist and strictlie binde it there, but leffe and more looley on both sides thereof. Such circumvolutions, or wrappings, are drawne upwards, and there ended. They must bee rowed like thicke, and not wide; for if they prefently follow, and lyce one upon another, they will hold the boncs more firmly, and more farre and wide, that forth and require the superfluos blood from the found part. They prefently in like fort cast the second ligature upon the verie fracture, giving it two wraps, then going down wards; yet so, as that they are openner or wider, and farther distant each from other, and not to clofe together, as the circumvolutions of the third ligature, so that they may preffe the humors the leffe to the extremities of the part, as those which cannot receive and bear, without inflammation and danger of a gangrene, such abundance of humors, for that they are not sufficiently fatious, as also more remote from the fountaine of native heat, which is greater in the center than in the circumference. At the lower end of the hurt part the circumvolutions either end, or else are twined thence back againe. They caft on the third ligature in that lower end of the hurt part, and rowle it smoothly and gently upwards, the windings being made contrarie to the windings of the first and second ligatures; that they may draw backe into their natural state the muscles, which peradventure have beene drawn aside by the force of the former wrappings. These ligations finislied, they apply three splints of past-bord, or some such matter, the first below the fracture, and that truly more broad, and of sufficient length, and then two others, one on each side, distant each from other some fingers breadth, at the end to keep the bone that it doe not flitte to this side or that, being wrapped about with Tow or Cotton. Then they thinke of placing or laying the part, to which purpofe they purpose to propound to themselves three foopes. The fth is, that the part may lye fof, the second smooth, or even; the third, somewhat high. The hurt part ought truely to lyce fof, for that hard lying preffes it, and caueth paine and infammation, which whiles the Patient cannot patiently endure, he is forced to change his place, while hee everie way seeks cafe for his paine: and thus he now and then moves the fractured part, which ought to be kept quiet without any motion. It must lyce smooth or even, because an equall or uneven fite difters or draws awry the part, while one portion of the hurt part is borne up, and suffocated by that which lyes under it, but the other hanging downe hath nothing therunder, whereupon it may felf. Therefore Hippocrates bids us diligently to take heed, that the heels doe not hang downe, for if the footcftiallbe placed in a lower figure, the blood which flowes thither may bee hindred, which is easily flirred up by a prone and declining fite: and thus the part may not be too much diftended, as Hippocrates ad monifieth us. In the meantime, this hurt legge or fide, ought to bee of equal length with the found, and for that purpofe it must bee flayed on both fides with Junks, as we shall shew you hereafter, when we come to speake of a broken legge. The bandage being performed as we have faid, the following night, and the next day the Patient feels the member more ftraitly bound, than when it was firft wrapped; yea, verily the knee is lifted up into a foft tumor by the expreffion of the humor from the wounded part: but on the contrarie, the ensuing day the ligation is slackned and relaxed, some portion of the humor contained in the part being digested. Alfo the next day all things are perceived more loofe, there being made a larger resolution of the humor. Then therefore the Bandages must be loofed, and that not only, left that the fragments of the bones should fall forth of their place, but alfo that we may gratifie the Patient by that alteration or change of place, and beides that we may avoyde itching, which usually happens to parts too long bound up,
by reason of the suppression of acrid and fuliginous excrements, which use to be
gathered in great quantities in a part at rest and bound up, both from the excremen-
titious humors, wherewith the part is moistened, and the alimentary humors in a
part which is idle and at quiet, by reason the diffusion and transpiration are hin-
dred by want of exercise, and the pores of the skinne shut up by the abundance of
the ligatures: so that by the suppression thereof, many have not only an itching,
but also, the skinne being broke by the actinic of these, as well vapours as hu-
mos, which are kept shut and pent up, have ulceres break forth. Therefore when
such accidents shall be feared, the part shall so long be fomented with warme water
and oyle, as you shall thinke fit: for, such fomenting affwageth paine, quickens that
which was too much percutted by the binding, and amends the refrigeration of
the part, caused by the repercussion and expression of the blood and spirits, the na-
tive and internal heat being by this means revived. If, together with the tumor,
there be a contusion and squamation, it must bee the longer fomented, that the ex-
crementitious humor refiding in the part may be digested. But if this quantitie of
time shall not suffice, then must you use stronger digestives: yet have a care you
use them not too long: for so you should hinder the generation of a Callus. There-
fore that saying of Hippocrates must here be remembered, which faith, That a weak
fomentation, and the short time of using one doth attract, but not discours; but a
longer and stronger wafteth the flesh. Besides also, you must have regard to the tem-
per and habit of the Patient; for fomentations, used to plethorick bodies, draw su-
perfluous humors to the part. The Ancients bid, that the ligatures be loosed evcry
third day, untill their seventh day; but after the seventh, on every seventh day:
but whereof nothing can be certainly and perpetually decreed. For, according to
the accidents the Patients must be dressed sooner or later, more often or seldom,
rewing the ligatures, and the reft of the dressing. Therefore, if no symptom urge,
I would have none of these things, which are done to the Patient at the firft dressing,
to be moved, unlefe as slowly and seldom as you may. For you hinder the knitting
of the bone, if you never so little move the ends of the fragments thereof: for, as
you see wood is joyned together by glue, and pewter with lowder, so the fragments
of bones are, by the providence of nature, glued and fowted together by a
Callus. Wherefore broken bones have very much need of rest, to the generating of
a Callus; otherwife, the matter thereof flowing downe, quickly flowes away, and
nothing is done. You may much helpe forwards the generation of a Callus, which is
begunne about the thirteenth or fifteenth day, by applying an emplastre made
with the white of an egge, having the powder of red rofe leaves, and wheat flour
mixed therewith, and other Cataplectic plaifters, which shall hereafter be descri-
ded in speaking of the fracture of a legge.
Then I loofed all her ligatures, and perceived such a prominence as I did formerly. Wherefore I endeavoured againe to force in the head of the bone, as I formerly did. But as I was bufied therein, I heard a little crackling, and alfo I confidered, that there was no cavitate nor defpirition in the joynt, by which fignes I certainly perfuaded my felfe, that the bone was broken, and not diflocated. Neuer only fuch kind of Fractures, but alfo the feparation of the appendix or head of this bone from its place, may induce one to think it a diflocation; which thing hath sometimes deceived fome heedleffe Surgeons, who have not dreamt of the divulfion or feparation of the appendix from the top of the Thigh-bone, but have judged it only a diflocation. Then therefore (that I may returne to my former narration) I fet the bone, and joyned the fragments together, layd thereupon fpints with comprefles, made ligations with a rowler, having two heads wrapp'd about the joynt, and the bodie croffe-wise, and I defended her fooce with a Cafe, that none of the clothes might prefs it. I laffen a rope to a poft, and fo let it come downe into the midt of the bed, and tyed many knots thereon, for the better taking hold and lifting up her fooe; the which thing you must alwaies doe in fractures and diflocations of the thigh and legge, that fo your Patients may have fonie lay, whereby they may fuccour themselves with their hands, as oft as they desire to rife, or lift themfelvses up in their beds, or goe to ftoole; as alfo, that they may give perpiration, and as it were ventilation to the loynes, buttocks, rumpe, and other parts, compressed and wearied with long lying, for want whereof they are molefted with heat and paine; whence ulcers arife, which oft-times torment the Patient with fuch tormenting heacie and paine, that he is even confumed by a fever, watchings, and want of reft. This opportunitie of raising the bodie out of the bed, is by fo much the more neceflary in this place, by how much the fracture is nearer the joynt: aure of the bone, for there it is more dangerous than in the midt of the thigh, and confequently more difficult to drefle and heale, for that the part is bloodleffe, and by reafon of the multitude of the nerves, tendons and ligaments, which are obnoxious to many maligne symptomes. But the Surgeon muft have diligent care in this kinde of fracture, and muft looke often that the bone, which is fet, doe not fall forth againe, which eafiily happens here by any light ftirring of the bodie, & the like occafion, for that the thigh hath but one onely bone. Therefore, as oft as the Bandages fhall be loofed, and the fracture drefled, he fhall attentively view the figure of the bone, and the magnitude of the affected part, comparing it with the found; for the fer and compofed fragments of the broken bone, can scarce fall afunder, but that the one muft lye upon the other. But before it be knit, the part muft be extended and reflored to its flate, that fo the Patient may not halt during the refidue of his life. For I have read it written in Avicen, that fcarce any doe fo well recover a fractured thigh, that they doe not fall thereof; therefore the Patient muft be carrefull, that hee move himfelfe, or his bodie, as little as hee can. Many of the Ancients have fet downe the time of the confolidation of this bone to bee fiftie dayes; but (as I formerly fayd) there can bee no certaine or determinate time hereof. But in what time foever this bone fhall bee knit, the Patient muft not ftand or goe thereon prefently upon it, for that there remains a weakenefle in the part a long time after, fo that the Patients are forced to ufe Crutches to goe withall, in the mean space while they recover more ftrength.
Concerning Fractures.

CHAP. XXII.

He Whistle-bone of the knee is oftentimes contused, but not so frequently broken: yet when that happens, it goes into two or three pieces, sometimes long-wit, sometimes athwart, Sometimes it is broken in the midft, and some-whiles shivered into many splinters, and all these either with, or without a wound. The figures are, impotency in going, a hollowness in that place, and a sensiblc separation of the fragments of the hurt part, and the cracking of these parts under your hand. It is set after this manner: Wish the Patient to stretch forth his legge, yes, hee must keepe it extended all the while, until it be knit, and therefore let him bebind it unwares; the hollowness of the Ham shall be filled with a boulter: for by bending of the knee, the fet fragments of the whistle-bone would againe fly in funder. This being done, the fragments shall by the hand of the Surgeon be fet as fitting, and be kept so by the application of convenient remedies, making ligatures, and applying Jumps, as wee faid must be done in a fracture of the Thigh-bone. And lastly, you must observe and doe in this, as in the fracture of a legge. For the Prognostick, this I affirm, That I have seene none of those who have had this bone fractured, who have not halted during the rest of their lives. The caufe hereof is, the knitting by the concurrence of a Callus hinders the free bending of the knee 5 going, especiallly on even ground, is more easie to the Patient, but an ascent is farre more difficult, and absolutely painfull. The Patient must necessarily for this kinde of fracture lye or keep his bed, at the least for forty dayes.

CHAP. XXIII.

Of a broken Legge.

His kinde of Fracture is cured after the fame manner as that of the arme or cubit. Hippocrates admonishe us, that the Tibia, or Leg-bone is more dangerous to be broken, and more difficult and flow to be healed than the Fibula, or Shin-bone; because that is the thicker, and as it were the upholser of the whole bulke of the bodie: but this other is but as it were a certaine additament or assistanr, provided for the staying or bearing up of the muscles of the legge, by which the foot is moved. The legge bone being only broken, the figures thereof are perceived only in the inner part of the legge; for that the Shin-bone being whole, suffereth it not to throw or cast forth its felle. On the contrarie, when the Shin-bone onely is broken, the figures thereof appear only in the externall part of the legge; because the legge bone, being opposed thereto, doth not suffer it to cast in its felle, and with its fragments to turne inwards. But when both the bones are broken, the figures of the fracture may equally appeare both here and there. But when only one of these bones are broken, the fracture is farre more easie to dresse and heale, because that which remains whole, is a much more firme stay to that which is hurt, than any splints can bee. But that I may the better instruc and make ready the Surgeon for the restoring of this fracture, I will ilustrate the matter by an example from my selfe. John Neftor, Doctor of Physicks, Richard Hubert, and I, went together to visit a Patient at the Place of the Friet Minorites, Wherefore, intent to passe over the Seine within sight of the place, I endeavoured to make my horse take boar, and therefore witched him over the buttocks. The Jade, madded herewith, fo struck at me with his heels, that he brake both the bones of my left legge, some fourie fingers breath above my ankle. Then I, fearing some worse mischief, and left the Jade should double his blow, flew back; and as I fled backe, the broken bones flew in funder; and breaking through the flesh, flocking
Concerning Fractures.

flocking and boote, shewed themselves, whereby I felt as much paine, as it is credible a man was able to endure. Wherefore I was presently carried into the boote, that so I might be carried to the other side of the water to be dressed: but the firring of the boat as they rowed, almost killed me with bitterness of paine, for that the sharpe fragments of the bones were rubbed against the flesh which lay next them. Being ferried over as I was conveyed into the next houses, my pain was much encreased, whilst lifted by the hands of divers persons, one while up, another downe, sometimes to the left side, others to the right with my whole bodie, and all the parts thereof. When at the length, I was layd upon a bed, I was somewhat freed from the bitterness of my paine, and had time to wipe off the sweare, which ranne downe over all my bodie. Then was I dressed with such a medicine, as the time and place would afford, we composed it of the white of an egg, wheat flour, foote of a chimney, and melted butter. For the rest, I intreated Richard Hubert, that he would handle me, as if he knew me not, neither that, moved for love of me, he should remit any thing of the severitie of art, but chiefly, that he would stretch my foot straight out, and if the wound were not sufficiently wide, that he would enlarge it with his incision knife, that so hee might the more easily set the broken bones in their due place: that he would with his fingers whose judgement is farre more certaine than the best made instruments) search, whether the splinters which were in the wound were quite severed from the bone, and therefore to be taken forth: that he would bind up and place my legge in that fire and manner, as he thought best: which is, that he should have three roylers in a readiness; the first whereof he should cast directly upon the wound, so that he should beginne his ligation at the wound; also he should put splinters about it, some three, but others two fingers breadth, of the length of half a foot, somewhat depressed and hollowed, whereby they might be the more easily put about the legge, more straitly at their ends, and a fingers distance each from other, which at the last he should binde with fillers, like those wherewith Women use to binde up their hair; yet so, that the binding might be more strait upon the wound: and that he would fill the cavities of the ham, and of the ancles, with boulsters made of flaxe wrapped in linnen clothes: that he would forthe the sides of my legge with Junkes made of bents or little ftickes, and lined with linnen cloth, stretched from my heele to my groine, and bound over in foure places: so that the strait figure of the legge might more strongly bee persevered by any force: that he should gently, and smoothly lift up my legge to an indifferent height: and lastly, that he should arm it from the violence of externall injuries, by putting it in a boxe or case. But you must observe, that the fit placing or laying of the legge is a matter of such moment, that if any error be committed, it will caufe no leffe than lameness. For it if be lifted up higher than is fit, the Callus will be hollow on the fore side; if lower, then it will be gibbous or bunching forth. Neither also doe they commit a small errour, who doe not fill up the cavities at the ancles after the forementioned manner: for, hereupon the heele will be much afficted, whilst it is forced to sustaine a tedious and painefull comprefion, which at length brings a hot distemper, because the spirits cannot freely flow thereto: which I, finding by experience, not knowing the caufe, wifhed them ever now and then to lift up my heele, whereby it might enjoy the benefit of perspiration, and the spirits have free entrance thereinto, & the contained vapours paffing forth. To conclude, my hurt legge was layd upon a cufhion after the manner you fee here described.
Concerning Fractures.

Chap. XXIV.

Of some things to be observed in Ligation, when a Fracture is associated with a wound.

That the ligation must be made upon the wound.

What symptoms ensue the want of binding upon the wounded part.

Signs of the corruption of the bones.

When the wounded part must be osseted in ligation.

His, taken out of the doctrine of the Ancients, ought to bee kept firme and ratified. That Ligation must bee made upon the wound; otherwise the wounded part will presently lift it selfe up into a great tumor, receiving the humour pressed thither by the force of the Ligation made on this and that side, above and below, whence ensue many maligine symptomes. You may make triall hereof upon a sound fleshie part, for if you bind it above and below, not touching that which is in the midst, it will be lifted up into a great tumor, and change the nourishing and native colour into a livid or blackish hue, by reason of the flowing and abundance of the humour pressed forth on every side from the neighbouring parts. Therefore such things will happen much the rather in a wounded or ulcerated part. But for this cause, the ulcer will remaine unsupparted and weeping, crude and liquid humour flowing there-hence, like unto that which usually flows from inflamed eyes. Such humour, if it fall upon the bones, and make any fray there, it, with the touch thereof, burns and corrupts them, and so much the more, if they be rare and soft. These will bee signes of such corruption of the bones, if a greater quantitie, and that more filthie humour, flow from the ulcer, than was accustomed, or the nature of a simple ulcer requires; if the lippes of the ulcer be inverted, if the flesh be more soft and flaccid about them, if a forrowfull sene of aching, and also deeppe paine torment the Patient by fits; if, by searchring with your Probe, you perceive the bone to be spoyle of its periostium, and lastly, if you finde it felty and rough, or so if your Probe bee put downe somewhat hard, it runne into the substance of the bone. But we have treated sufficiently hereof in our particular Treatise of the rotteneffe of the bones. But certainly such rotteneffe will never happen to the bone, if the hurt part be bound up, as is fit, and according to art. Wherefore I judge it not amisse, againe to admonish the Surgeon of this. That as farre as the thing shall suffer, hee make his rowslings upon the wound; unless by chance there be such excessive paine and great inflammation, that, through occasion of such symptomes and accidents, he be diverted from this proper and legitimate cure of the diseale. Therefore then, because nothing more can be done, let him only doe this, which may be done without offence; that is, let him suply the defect of ligation and rowslers, with a linnen cloth, not too weake, nor too much worne, being twice or thrice doubled, and which may serve to compass the wound and neighbouring parts once about; let him few the edges thereof at the sides of the wound, left he be forced to stirre the fragments of the bones (which once set ought to be kept unmoved) as often as the wound comes to be dress'd. For, broken bones do not require such frequent dressling, as wounds and ulcers doe. By this it appears, that as want of binding, and too much loofeneffe in absence
Concerning Fractures.

What was used to the Author's Legge after the first dressing.

Being brought home to mine owne house in Paris in the afternoone, they took from me, out of the Basilica of the left arm, some five ounces of blood. And then at the second dressing the lips of the wound and places thereabout were annointed with emunctum rosatum, which, by a joint consent of the Ancients, is much commended in the beginnings of fractures: for it will allay paine, and hinder inflammation, by repelling the humors farre from the wounded part; for it is cold, astringent and repellent, as the composition thereof shews; for it is made ex oleo omphacino, aqua rosea, pauce aceto & ceri alba. Therefore I used this oynment for sixe dayes; I dipped the compresses and rowlers somewhiles in oxy crate, otherwhiles in thick and astringent red wine, for the strengthening of the part, and repelling the humors, which two things wee must have a care of in Hippocrates opinion, in fractures especially with a wound. Wherefore if at any time the compresses or rowlers seemed to dry, I now and then moistened them with the oxycrate, or rofe vyngeuer; for, their too much driuenesse, paine and inflammation happen; and if they binte the part somewhat more strait, they hurt it also by their hardnesse. You shal see many surgeons, who in this kinde of affay, from the beginning to the end, use only astringent and emplastick medicines, wholly contrary to the methode set downe by Hippocrates, and commended by Galen. For, by the continued use of such things, the pores and breathing places of the skinne are shut up; whence the fuliginous excrement being supprest, the exterior heat is increased, and itching caufed, and at length an ulcer by the fretting of the acride and serous humour long suppreft. Whereby you may learn, that astringent and emplastick medicines must not bee used above fixe days. In stead hereof you shall use the emplastiers, which I shall presently describe. In the beginning of my diseafe I used so sparse a diet, that for nine dayes, I ate nothing each day, but twelve newled prunes, and fixe morfels of bread, and dranke a Paris pinte of sugred water, of which water this was the composition.

Otherwises I used fyrop of maydens hair with boy led water: Ottherwises, the divine drinke (as they terme it) whereof this is the composition. R. faccis albi, $ xii. aqua font, lb xii. cinam. $ iii. bullianum simul secundum artum. I was purged when neede required with a bole of Castia with Rubarbe. I used also suppositories of Castile soapse to make me goe to foole; for, if at any time I wanted due evacuation, a preternatural heat presently feiz'd upon my kidnejjes. With this, though exquisite manner of diet, I could not prevail, but that a fever tooke mee upon the eleventh day of my diseafe, and a defluxion, which turned into an Abfceu, long flowing with much matter. I thinke the occasion hereof was some portion of the humor suppreft in the botome of the wound; as also by too looffe binding, by reason that I could not endure juft or more strait binding; and lastly, the diuerse scales of a fever and absceu, enflaung upon a fracture;
Concerning Fractures.

Scales or flakes of bones quite broke off, and therefore unable to be agglutinated: for these therefore purifying, drew by consent the proper nourishment of the part into putrefaction, and by the putridious heat thence arising, did plentifully administer the material and efficient cause to the defluxion and inflammation. I was moved to think they were flakes, severed from their bone, by the thin and crude juice flowing from the wound, the much hollow sides of the wound, and the more loose and spongy flesh thereabouts. To these causes, this also did accrue, one night amongst the rest, as I slept, the muscles so contracted themselves by a violent motion, that they drew my whole legge upwards: so that the bones, by the vehemency of the convulsion, were displaced, and pressed the sides of the wound; neither could they be perfectly compos'd of fet, unless by a new extension and impulsion, which was much more painfull to me than the former. My fever, when it had lasted with me seven days, at length enjoyed a crisis and end, partly by the eruption of matter, and partly by sweat, flowing from me in a plenteous manner.

**Chapter XXVI.**

**What may be the cause of the convulsive twitching of broken members.**

His contraction, and (as it were) convulsive twitching, usually happens to fractured members in the time of sleep. I think the cause thereof is, for that the native heat withdraws itself while we sleep, into the center of the body, whereby it commeth to passe, that the extreme parts grow cold. In the meantime, nature, by its accustomed providence, sends spirits to the supply of the hurt part. But because they are not received of the part evil affected and unapt thereto, they betake themselves together, and suddenly, according to their wonted celerity, thither from whence they came, the muscles follow their motion: with the muscles, the bones, whereinto they are inserted, are together drawn; whereby it comes to passe, that they are againe displaced, and with great torment of paine, fall from their former state. This contraction of the muscles is towards their original.

**Chapter XXVII.**

**Certaine Documents concerning the parts, whereon the Patient must necessarily rest, while he lies in his bed.**

Those who have their legge or the like bone broken, because they are hindered by the bitterness of paine, and also with for their cure or consolidation, are forced to keep themselves without stirring, and upon their backs in their beds for a long time together. In the meantime, the parts whereupon they must necessarily lye, as the helle, backe, holy-bone, rumpe, the muscles of the broken thigh or legge remaine stretched forth and unmoveable, yet at libertie of their usuall functions. Whereby it cometh to passe, that all their strength decayes, and growes dull by little and little. Moreover also, by the suppression of the fuliginous and acride excrements, and want of perspiration, they grow preternaturally hot, whence defluxion, an abces and ulcer, happen to them, but principally to the holy-bone, the rumpe and helle: to the former, for that they are defended with small stote of flesh: to the latter, for that it is of more exquisite sense. Now the ulcers of these parts are difficultly healed, yea, and oftentimes they cause a gangrene in the flesh, and a rottenness and mortification in the bones thereunder, and for the most part a continued fever, delirium, convulsion, and (by that sympathy which generally accompanies such affects) a hickering. For the helle and romacke are two very nervous parts, the latter in the whole bodie thereof,
Concerning Fractures.

Lib 15.

thereof, and by a large portion of the nerves of the sixth conjugation; but the other by the great tendon passing under it, which is produced by the meeting, and as it were growing together of the three muscles of the calf of the leg. All which are deadly, both by dissipation of the native heat by the feverish, and that which is preternatural, as also by the infection of the noble parts, whose use the life cannot want, by carrion-like vapours. When as I considered all these things with myself, and become more skilful by the example of others) understood how dangerous they were, I wished them now and then to lift my heel out of the bed; and taking hold of the rope which hung over my head, I heaved up myself, that the parts, pressed with continual lying, might transpire, and be ventilated. Moreover also I rested these parts upon a round cushion, being open in the middle, and stuffed with soft feathers, and laid under my rump and heel, that they might be refreshed by the benefit and gentle breathing of the syrups: and I did oftentimes apply linen clothes, spread over with unguentum rosatum, for the allaying of the pain and heat. Besides also, I devised a Cassel of Latrin, wherein the broken leg being laid, is kept in its place, far more surely and certainly than by any Junks; and moreover also, it may all be moved to and againe at the Patient's pleasure. This Cassel will also hinder the heel from lying with all its body and weight upon the bed, putting a soft and thick bolster under the calf, in that place where the Cassel is hollow: besides also, it armes and defends it against the falling down and weight of the bed-clothes, having a little arch made over and above, of the same matter. All which shall be made manifest unto you by the following figure.

Now it remains, that I tell you what remedies I applied to the Abscess which happened upon my wound. When therefore I perceived an Abscess to breed, I compounded a suppurgative medicine of the yolks of eggs, common oyle, turpentine, and
Concerning Fractures.

A materia.

R., sypaps refails & terebinth, cinnam., an. 5 ii. pulveris radicis ferorentiae, aloe, masticae, farina bordet, an. 5 ii. incorporantur omnia simul & matrundificatum; but I had a care, that the place, whereby I conjectured the quite severed scales of the bone must break forth, should be filled with tents made of sponge or flaxe, that so, by this means, I might keep the ulcer open at my pleasure. But I put into the bottom of the ulcer catagmatick and cephalicke powders, with a little burnt Alum to procure the erasure of the formerly mentioned scales. Thee at length cast forth, I cicatrized the ulcer with burnt Alum. For, this having a drying and astringent facultie, confirmes and hardens the flesh, which is loose and flange, and flowing with liquid janiis, and helps towards nature's endeavours in cicatrization. For, the fragments of the bones, they, by reason of their natural drinke and hardness, cannot be joyned and knit together by themselves without a medium; but they need a certaine substance, which, thickning and concreting at their ends, doth at length both efficacie and material of a Callus.

Medicines containing to the generation of Callus.

R., olei myrist. & ofurum emplas., an. 5 ii. rad. althoe. ii. ii. rad. fraxini, & fol. syringum, rad. confidinum majoris & fol. confidin. fol. salici an. m. i. fiet decocto in siffentientia quantitate uini nigri, & agua fabrorum ad medietatis conjunctione, adeo in colatura pulvis myrrha & thuris an. 5 ii. adipsi hicii. 1 ii. terebint. lata. 5 iii. mastic. cher. 5 ii. litorhysiri aurii & argentii an. 5 ii. boli armenia, & terra giglata, an. 5 iii. miini 5 vi. cera alba quantum sufficit, fiat emplasrum. ut osti. In stead hereof you may use the blacke emplasfer, whereof this is the description.

The blacke emplaster.

R, litorhysiri aurii, i. olei i. aceti an. 5 ii. coquantur simul lento igne donec nigrom & splendidius reddatur emplasfrum & non adhaereat digitis. Or else, R. olei refait, & myrist. an. 5 ii. nucum cupresi, boli armen. sanguinis dor. pulverifatum an. 5 ii. emplasfris diachalcis 5 iii. liquefaciant simul, & fiat emplasfrum secondum artem. In defect of these, you may use a Cere cloth, or tela Guasteri, whereof this is the description.

R. pulveris thuris, farina volatilis, masticis, boli arm. resina pini, nucum cupresi, rubra tinctorum. an. 5 ii. fesi arietini & cera alba an. 16. 8. fiat emplasfrum. into which (while it is hot) dip a warme linnen cloth, for the forementioned use. Emplasfrum Discalciator, by the common comfort of all the Ancients, is much commended for fractures: but it must undergoe different preparations, according to the condition of the time, for in summer it must be dissolv'd in the juice of plantaine and nightshade, lest it should heat more than is fit. It is convenient, in the interim, to have regard to the temper of the affected body; for nyther are the bodies of children to be so much dried as thefe of old men: otherwise, if such drying medicines should be applied to young bodies as to old, the matter of the Callus would be dissolv'd; it would be so farre from concreting, wherefore the Surgeon must take great heede in the choyse of his medicines. For, often times remedies, good of themselves, are of use made not good, because they are used and applyed without judgment; which is the cause that oft times pernicious accidents happen, or else the Callus becomes more flof, hard, slene, crooked, or lastly concretes more slowly by the great error, and to the great shame of the Surgeon.
By what means we may know the Callus is a breeding.

I knew that my leg began to knit, when as lesser matter than was usuall came from the ulcer, when the paine slackened, and lastly, when as the convulsive twitchings ceased; which caused me to judge it fit to dreffe it feldomer than I was ufed to doe. For, by the frequent detersion in dreffing an ulcer, whilst a Callus is breeding, the matters whereof it is to be made, are drawn away and spent, which are (as they term it) Res, Cambium, and Glutin, which are the proper and genuine nourishments both of the bony, as also of the callous substance. I by other signes also conjectured the breeding of the Callus, to wit, by the sweating of a certaine dewy blood out of the edges and pores of the wound, which gently dyed and bedewed the bullers and ligatures, proceeding from the efflux of the subtile and gentler portion of that matter, which plentifully flowed downe for the breeding of a Callus. As also, by a tickling and pleafing fent of a certaine vapour, continually creeping, with a moderate and gentle heat, from the upper parts even to the place of the wound. Wherfore thence forwards I somewhat loosened the ligation, lest, by keeping it too strait, I should hinder from entering to the fragments of the bones, the matter of the Callus, which is a portion of the blood, temperate in quality, and moderate in quantity. Then therefore I thought good, to use nourishments fit to generate more grosse, thick and tenacious blood, and sufficient for generating a Callus; such as are the extremities, tendinous, and gristy parts of beastys, as the heads, feste, legges and ears of Hogs, Oxen, Sheepe, Kids; all which I boyled with Rice, French Barley, and the like, using somewhiles one, somewhiles another, to please my stomack & palate. I also sometymes fed upon frumity, or wheat fodder in Capon broth with the yolks of eggs, I drank red, thick and astringent wine, indifferentlie tempered with water. For my second courfe, I ate chestnuts and medlars; neyther doe I without some reason, thus particularize my diet: for that grosse nourishments, especially if they be friable and fragile, as beefe is, are alike hurtfull (for as much as pertaines to the generating of a Callus) as light meats are. Therefore Galen pronounces these meats only fit for generating a Callus, which are neither fragile nor friable, neither feros and thin, nor too dry; but indifferent grosse, and also viscid, fat and tough. These meats, digested by the stomack into Chilus, are sent into the guts, and from hence, by the mefarack veins into the Gate-veine, and the hollow part of the Liver, thence into the Hollow-veine, and fo into the Veines dispersed over all the bodie and the parts thereof. There are also some of these veines which carry blood into the bones; but in the large cavities of the bones is marrow contained, as in the small a certaine marrowie substance, proportionable thereunto, being their proper nourishment. The generation of marrow is from the grosser portion of the blood, which flows into the greater cavities of the bones by larger veines and arteries, but into the leffe by leffer, which end in their pores and small passages. For, in large bones you may observe large and apparent passages, by which the veines and arteries enter for the formentioned use. By the same waies the nerves also infinuate themselves, from whence proceedes a membrane which involves the marrow of the bones, the which by that means is ended with most exquisite fentle, as experience teacheth; which is the cause that makes many believe, that the marrow hath sense of feeling, because the membranes therefore being hurt cause most bitter paine. Therefore out of the marrow and the proper substance of the bone, there sweats a certaine grosse and terreftriall juice, whereof, by the power of the assimilating facultie, which serves in stead of the formative, a Callus growes and knits. Simple fractures of the legge are usuallly knit in fiftie daies; but through the occasion of the wound and the scales quite broke off, and other accidents which befell me, it was three whole months before the fragments of the bones were perfectly knit, and it was also another month, before I could goe upon.
my legge without the help of a Crutch. Going was painfull to me for some few daies, because the Callus had taken up some place of the muscles: for, before my former freedom of motion could return againe to the broken and knit part, it was necessarie, that the Tendons and Membranes should separate themselves by little and little from the scarre. In the performance of all these things, I had the diligent and faithfull assistance amongst the Surgeons, to omit Physitians, of Anthonie Portall, the Kings Surgeon.

CHAP. XXIX.

Of those things which may hinder the generation of a Callus, and how to correct the faults thereof, if it be ill formed.

Aving already spoken of the signes of a Callus beginning to concret, of its generation and the manner thereof: it now remains, that we treat of those things which hinder the generation thereof; and what on the contrarie helpe forwards the conformation and concretion thereof. Now these things which either wholly hinder, or else retard the generation of a Callus, have a strong and powerful dulcificte and attenuating facultie; or else they are undulous, oily and moist. For, by such the juice, whereof the Callus ought to be, is either melted and consumed, or else grows soft, and is relaxed. But on the contrarie, those things which helpe forwards a Callus muft bee drying, increaffing, thickening, hardening and emplastick, moderately hot and astringent. But for moist and relaxing medicines, they ought to have no place here, unless when it happens that the Callus is ill formed, that is, too thick, or crooked, or otherwise ill shaped; whereby it may be wafted and broken, fo to bee restored againe after a better manner. Yet notwithstanding, such things are not to be attempted, unless when the Callus is yet Greene, and so deprauid, that the fault thereof doth very much pervert the native conformation of the part, and exceedingly offend the action. Then therefore in such a cafe, the place muft be fomented with a decoction of a ups head and guts, wherein (hall be boyled the roots of Marsch-mallowes, of Brionie, the seeds of Line, of Pigeons dung, Bay-berries, and the like. You shall alfo use this following ointment and plaister.

R.  unguentum de Atlosa, & muolei hirtorum, & anseris anis, aqua vita, parum, ligneant simili, fatis humentum quo linisatur pars. Then apply this following emplaster.

R. emplast. de Vigo cum mercurio, cerati apfpari, descriptione Philagrii, & 3ii. olei anethimi & litoriwm anis, ligneant omnia simili, fatis emplastum. Then apply this following ointment and plaister.

What helps forward the generation thereof.

What helps backwards the generation thereof.

The cause of too slender a Callus.

The cause of too tender a Callus.

The cause of too strong a Callus.

The cause of too weak a Callus.

The cause of too hard a Callus.
Concerning Fractures.

nefs, even for this reason, for that exercise flowers up the native heat of the part, the worker of digestion and nutrition) or else for that they feed upon such nourishments as offend in quality, or quantity, or both, or for that the ligature used to the part is too often loosed, or because the part its selfe is too haithly and before the time put to undergoe solid offices and motions. According to the variety of caufes, medicines shall bee applied. For if the ligature of the part bee too strait, it shall bee loosed, yea verily the fractured place, the ligature being taken away, shall be quite freed from ligature, and a new kind of ligature muft bee made, which muft bee rowled downe from the roote of the veffels, that is, from the armepits, if the arme, or from the groine, if the legge be broken, to the fractures; yet so, as that you may leave it untouched or taken in, for that the blood is pressed from the fountain and spring, and forced into the affected part, by a way quite contrary to that, whereby we have formerly taught in feare of inflammation, to hinder it from entrance into the affected part. Also gentle frictions and fomentations with warme water may be profitably made, from which you muft then diftinct when the part shall begin to grow hot and fwell. If any long continue thefe frictions and fomentations, hee shall resolve that which he hath drawnethither. For this we have often times obferved, that frictions & fomentations have contrary effects, according to the shortness and continuance of time. Pications will also condufe to this purpose, and other things which customarily are used to members troubled with an atrophia, or want of nourishment.

Chap. XXX.

Of fomentations which bee to broken bones.

Fomentations are used to broken bones for severall caufes. When warme water, we use warme water for a fomentation, wee meaneth that, which is just betweene hot and cold, that is, which feemes lukewarme to the hand of the Physitian and Patient. A fomentation of such water used for some short fpace doth moderately heat, attenuate and prepare for resolution, the humour which is in the surface of the body, it draws blood and an alimentarie humor to the part labouring of an atrophia; it allwages paine, relaxes that which is too much extended, and moderately heats the member refrigerated through occasion of too strait binding, or by any other means. On the contrarie, too hot fomenting cools by accident, digefting and difcuffing the hot humor which was contained in the member. Wee mean a short time is spent in fomenting, when the part begins to grow red and fwell; a just fpace, when the part is manifestly red and inflame: but we conjeqture, that much or too much time is spent thereon, if the rednefe, which formerly appeared, goe away, and the tumor, which lifted up the part, subsidence. Also in fomenting, you muft have regard to the bodie wheroeto it is used. For if it be plethorick, an indifferent fomentation will dilfend the part with plenty of superfluous humors; but if it bee leane and fpare, it will make the part more fleetifh and succulent. Now it remaines, that we say somewhat of the fracture of the bones of the feet.

Chap. XXXI.

Of the fracture of the bones of the feet.

He bones of the Inflep, back and toes of the feet, may bee fractured as the bones of the hands may. Wherefore thefe shall bee cured like them, but that the bones of the Toes muft not be kept in a crooked poiffure, as the bones of the fingers muft, lest their action should perifh or bee depraied, that poiffure. For we ufe our legges to walk, fo we ufe our feet to ftand: Besides also the Patient shall keep his bed until they bee knit.

The end of the fifteenth Booke.
OF DISLOCATIONS.

Or,
LUXATIONS.

THE SIXTEENTH BOOKE.

CHAP I.

of the kinds and manners of Dislocations.

Dislocation is the departure or falling out of the head of a bone from its proper cavite, into an unacustomed place besides nature, hindring voluntarie motion. There is another kinde of Luxation, which is caufed by a violent dislocation, and as it were a certaine diabarication, and dilatation, or extension into length and breadth of the ligaments, and all the nervous bodies, which containe, strengthen, and bind together the joynts. Thus thofe who have been tormentend and racked, have that thick ligament which is in the inner cavite of the bucke bone too violently extended: Thofe who have suffered the Strappado, have the ligaments, encompassing the articulation of the Arme-bone, with the shoulder-blade, forcibly and violently dilatend. Such alfo is their affect whose foot is trained by lipping. There is a third kinde of Luxation, when as thofe bones which are joyned contiguous, and one (as it were) bound to the fides of another, gape or flye aunder: as in the Arme, when the ell parts from the wand; in the legge, when the one fociyle flies from the other: yet this may be referred to thefe cond fort of dislocations, because it happens not without dilatation, or elle the breaking of the ligaments. There is alfo a fourth added to thefe, as when the phyes and heads of bones are plucked from the bone whereon they were placed or faftened: which unproperly called kinde of Luxation, hath place chiefly in the bones of yong people, and it is knowne by the imporence of the part, and by the noise and grating together of the crackling bones when they are handled. Now the bones of yong folks are alfo incident to another casualtie: for as the bones of old people are broken by violence by reafon of their drineffe and hardnede, thus the bones of children are bended or crooked in by reafon of their naturall loftneffe and humiditie.
Concerning Dislocations, or Luxations.  

CHAPTER II.

Of the differences of Dislocations.

Some Dislocations are simple, others compound. We term them simple when which have no other preternatural affect and joined with them; and such compound, as are complicated with one or more preternatural affects; as when a dislocation is associated with a wound, fracture, great pain, inflammation, and an abscess. For, through occasion of these we are often compelled to long to let alone the luxation, until the becomethrented of themselves, or by our art. Some Dislocations are complete and perfect, as when the bone wholly falls out of its cavity: other times are imperfect, as when it is only lightly moved, and not wholly fallen out, wherefore we only call them subluxations or strains. Differences of Luxations are also drawn from the place; for sometimes the bone is wrested forwards, otherwhilses backwards, upwards, downwards; somewhilses it may be wrenched, according to all these differences of site, and otherwhilses only according to some of them. Differences are also taken from the condition of the dislocated jointing greatnefe and littleneffe, from the superficial or deeper excavation of the sinus or hollowness; and lastly from the time, as if it be lately done, or of some long continuance. I have judged it fit to set down all these, for that there are several indications of curing, according to the variety of each of these, as we shall teach hereafter.

CHAPTER III.

Of the causes of Dislocations.

Here are three general causes of Luxations, internall, externall, and herediteriar. The internall are excrementitious humors and flatulencies, which, settling into the joints with great force and plentie, do so make slipperie, often & relaxe the ligaments which binde together the bones, that they easily fall out of their cavities; or else they so fill and distend these ligaments, and make them so short, that being contracted, they also contract the appendices of the bones from whence they arise, and so pluck them from the bone whereon they are placed, or else draw the heads of the bones out of their cavities, chiefly if the violence of a noxious humor doth also concur, which posessing and filling up the cavities of the joints, puts them from their seats, as it oft times happens to the joint of the hip by Sciaticaes, and to the Vertebrae the spine, by whose Luxation people become gibbous, or otherwise crooked. But externall causes of Dislocations are, falls from high, bruising and heavie blowes, the Rack, Strappado, slipping ingoing, and all such like things, which may force the heads of the bones to fly out of their feet, or cavities, which also happens sometimes to infants in their birth, when as they are so carelessly and violently drawn forth by the Midwife, so that either their armes or legges are put out of joint. Hereditary causes are such as the Parents transfuse into their offspring; hence it is, that crooked not necessarilie, but often times are generated by crooked, and lame by lame. The truth whereof is evident by daily experience. Befides also Hippocrates himself averses, that infants in the very wombe may have their Joynets dislocated by a fall, blow and compreffion, & by the too much humidity and loofenes of the Joynets: whence alio we see many crooke legg'd and footed from their nativitie; so that none need marvell or make any doubt hereof. We have read it obferved by Galen In libro de Artic. that children may have impoamines in their mothers wombs, which may caseth quittance, the ulcers being opened of their own accord, and be cicatrizd by the only benefit of nature. It also happens to many from their first conformation, that the cavities of their Joynets are leffe depreff than they should bee, and that
Concerning Dislocations, or Luxations.

The signs of dislocations.

One of the signs whereby we come to the knowledge of a luxated bone, are common to all dislocations; others are proper only to several Luxations. It is a common sign, that there is always a tumour in that part where the bone runs, and a hollowness on that side from whence it is flowne. Now the proper signs shall be shewed, when as we come to treat of the particular kinds of Luxations.

We know a perfect Diflocation by the lost action of the part, that is to say, the lost motion; pain also breeds a suspicion of a dislocation: for the head of the bone, which moved out of its place, is forced into another, presses the flesh, and dislocates the nerves also moved out of their place. Hereof also conduces the comparing of the found joint with that which is hurt, in which collation, it is fit the found part, which is compared with the hurt, be no ways, neither by nature nor any accident, wronged, nor deformed, nor withered or decayed, nor swolne above measure, otherwise it may cozen and deceive you, if you bee leffe wary. Labour signifies of an and difficulty of action in moving, is a sign of an unperfect Luxation, or strain.

Now we thus know, that the ligaments, serving to the connexion of the articulations, are extended and relaxed, if the head of the bone, pressed with your fingers, be easily driven unto the contrary part, and suddenly flye thence back againe, if thrusting your finger into the joint, it easily enter, nothing resisting it, as though all were empty within; if the motion be difficult, or none at all.

Chap. V.

Of Prognosticks to be made upon Luxations.

All Joints may bee perverted or luxated, but all of them cannot in like manner be restored. For the head may be dislocated, but therupon present death ensues, by reason of the compreession of the whole spinal marrow presently at the originall thereof; such also is the dislocation of a vertebra of the spine, and of the jaw-bone, which, flipped forth on both sides, hath caused inflammation, and a great tumour before that it be set. The bones of other Joints, as they are more or lees dislocated, and moved out of their seats, so may they bee more easly or difficultly restored. For, by how much they are the leefe moved out of their places, by so much they are the more quickly, and by how much they are the farther, by so much they are the more slowly and difficulty set. Also an indication, taken from the figure of the luxated bone, gives a signe of the easie or hard restoring of the dislocation, as in the Arme, by how much the bones be the more easly dislocated, by so much once luxated they are the more easly restored. Bones doe not easily fall out of joynt in felthie bodies, but when they chance to be purour, they are not easly got in againe. For in such, the articulation is straitly on everie side held in by the thicknesse of the muscles, and the plenty of the
Concerning Dislocations, or Luxations.

L I B . 16.

the fat lying thereabouts. On the contrary, such as are lean, especially those who formerly have beene more fat, have their joints more lax, whereby it comes to paife, that their bones may easily be put forth of joynt: besides also, through the default of the digestive facultie, they have their joints replete with mucous humors; whereas it is, that the heads of the bones, as standing in a slipperie place, are the lesse stable, as it is recorded by Hippocrates. But slender bodies, which are naturally dry, compact and dense, have their muscles and ligaments more strong and dry; wherefore their bones are the more difficultly displaced, and displaced, the more difficultly set. Some bones, joyned amongst themselves, do sometimes flye aunder, as when the shouder blade flies from the collar-bone at the Acromion, and in the Arme the Ell from the Wand, and in the Legge the one folicle from the other, and the Heele-bone from the Ankle. Bones thus separated will never be joyned together againe, will never recover their former comely figure, never their strength of action. For, then it most usually happens, that the ligaments are either broke aunder, or else resolved and become lax. Those whole bones are dislocated by an externall caufe, they, after they be fet, may easilly fall out againe, for that the ligaments, moystened and bedewed with an excrementitious humor, cannot firmly hold them: oft times the ligaments are not wholly broken, but are only in some portion thereof, and hence the action of the part either perifhes, or is debilitated. Also that dislocation is uncurable, when as the ligaments, fepaed and twoline up with an excrementitious humiditie, are fo much shortened and contracted in their length, as they have acquired in their breadth: and thus they draw away and plucke off the appendices of the bones from whence they arife, and by reason the bone and the appendix do enter and receive each other by manie cavities and prominencies, therefore they cannot, by how skillfull hand they be handled, be againe fitly placed and put together. Old and inveterate dislocations, wherein a tough humor posseffing the cavity is concrete in stead of the head of the bone, are not to be restored; as neither when the heads of the luxated bones have by continual attrition made themselves a new cavity in the neighbouring bone: neither if they be restored, is the restitution firm and of continuance; because the natural cavity is posseffed by another matter, and the new made nere thereto cannot well and faithfully contain the received head of the bone. Those who have their shouder dislocated, may use their hand for many actions, as well as the oppoffe found hand, for the weight of the bodie is not futfained by the hands, as it is by the legs. And by how much the hand is the more exercifed, by fo much the arme becoms the more corpulent. Contrarily, if the thigh bone be dislocated, especially if it bee wretted inwards, the whole legge quickly decayes by an atrophia, because the part doth absolutely lose all motion: for by the opinion of Hippocrates, the performance of the proper action increaseth strength, and makes the part in better plight; but idlenesse debilitates and makes it lean. If a great wound and fracture bee joyned with a luxation, there is danger, lest while we use extension for restoring the part, we draw the nerves too violently, and so break the nerves, veines and arteries, whence would ensue feare of inflammation, convulfion, and other maligne symptomes. Wherefor Hippocrates judges it better in such a concursoir and complica
tion of preternaturall affeds, abfolutely not to meddle at all with the setting of the dislocated bone: for by attempting the restitution, certaine death, but by omitting it only lameness is to be feared. Every dislocation must be restored before inflammating come; but if it be already present, you must presently be carefull to take it away. For other things, let the Patient reft, left if the affed be irritated, the increase and excelle of paine caufe a convulfion, gangrene, and laftly death, as I remember I have fomtimes observed. Therfore when inflammation and other maligne symptomes shall be mitigated and corrected, then may you endeavour to restore the luxation, especially if the habit of the bodie and member affected may admit it. For if the bodie be flander, delicate and tender, then the restitution will bee more speedie and facile. But on the contrarie, more difficult, if it be groffe and compact; And let thus much suffice for prognofticks in Luxations.
Concerning Dislocations, or Luxations

Chap. VI.

Of the general cure of Dislocations.

Or all that I have heretofore delivered the general method of curing Fractures and luxations, yet it shall not bee unprofitable to repeat here in this place, those things which may be accommodated to this Treatise of curing Luxations. Now he that will cure Dislocations, must have regard to five intentions, which it will be fitting to performe in order. The first is, of Holding; the second, of Drawing or Extending; the third, of Forcing in; the fourth, of Placing in convenient figure and fit; the fifth, of Correcting the concomitant, or following symptomes.

The first scope, which we said was of Holding, is meant either of the whole body, or else of some part thereof only. The whole body must bee holden by the strong embrace of your servant or attendant, when as the shouder, the vertebre, or the thighbones are dislocated. But in the dislocation of the Collar-bone, elbow, hand, knee, or foote and legge, it is sufficient oncly to hold the part straitly in your hands. There is necessitie of holding eyther the bodie, or else some part thereof, left, while the dislocated bone is extended, the whole bodie follow by continuance of parts, if there be nothing which may hinder: for if the bodie should follow him that drawes or extends, all the work-masters labour and endeavour to restore it, is to no purpose. The use of the second scope, is, of Drawing or Extending, is, that there may be a free space and distance betwixt the luxated bones, by which distance the dislocated bone may the more freely be forced into its cavity. But the manner of drawing or extending is different in quantity and manner, according to the various strength of the muscules and ligaments, and dislocation of the bones to this or that part. Therefore this worke is almost alwaics performed by the hands, which when they cannot suffice, we must use the affistance of instruments and engins, whose figures you shall see hereafter delineated. But that you may not doe amisse, you may so farre use extenfion, untill the head of the bone be brought juft againft its cavite. When the Surgeon hath brought it to this passe, then muft he haften to the third intention, which is, to put the head of the bone firft moved and gently bended, into its cavite. For hee muft have a speciall care, that hee force it no other way than into its proper cavity: for it would be dangerous, lest hee putting it no other way than into its proper cavity: for it would be dangerous, lest hee should turne it from one extreme into another, and the bone, for examples sake, of the thigh, which was dislocated into the forepart by too violent forcing, by exceeding the middle cavite, may be driven and dislocated into the hinder part. To shun this, the bone shall be put backe the same way that it fell out, which may bee easily done in fresh and late happening dislocations. We understand that the bone is set by the noyse, or as it were a popp, or sound like that, which solid and sounding bodies, being fully and forcibly thrufth in their cavities, do make, by the similitude and content in figure, magnitude and all conformation of the affected part with the sound, and lastly, by the mitigation of the paine. The fourth scope, which is of the convenient fire of the part, must bee so fulfilled, that the bone after it is set may bee kept in its cavite, and not flye forth againe. Wherefore if the arme be dislocated, it shall be carried bound up in a farce: if the thigh, knee, legge, or foote be luxated, they shall bee fitly laid in a bed; but in the interim the Surgeon, presently after hee hath fet them, shall have a care, that the affected joynte be wrapped about with stoups and clothes, or compresses steeped in rose vinegar, and spred with convenient medicines, then let it be bound with an artificiall deligation, rowling the ligatures unto the part contrary to that whereto the dislocated bone flew. For the which purpose thicker boulters shall be there applied whence the bone came out, otherwife there will be some danger, left it should be againe displace: when these things are done, he shall for foure or five dayes space meddle with nothing about the Dislocation, unless paine, or some such like symptome happen. For then the fifth scope will call us from that ceflation and rest, which is, to correct the symptomes and complicate
Concerning Dislocations, or Luxations.

Complicate affections, as pain, inflammation, a wound, fracture, and others, whereof we have spoken abundantly in our Treatise of Fractures. Before we attempt to let inveterate dislocations, we must endeavour to humect the ligaments, tendons and muscles by fomentations, cataplasmes, emplasters, liniments, and other remedies, that to these parts may be more obedient to the Surgeon's hand; then must the dislocated bones be moved, with a gentle motion up and down, to and against, that by this means the excrementitious humor, which by continuance of time hath flowed down, may wax hot, be attenuated, resolved or made slipperie, and also the fibres of the muscles, ligaments, and nervous bodies, placed about the joint for the defence thereof, may be loosed, that so they may presently be more freely extended. But if a great swelling, pain and inflammation urge, we must first think of affwaging and curing them, then of the restoring the Dislocation.

CHAP. VII.

The description of certain engines, serving for the restoring of Dislocations.

Before I come to the particular kinds of Dislocations, I think it not amiss to describe three sorts of Bandages, and give you their figures, as those which are most fit to hold and extend Dislocations. The first Ligature, designed by this letter A, is made for holding the member. The second, marked with the letter B, is fit for drawing or extension, and consists of one knot. The third, where to the letter C is put, consisting of two knots, is to hold or binde more straitly.

The delineation of the three Ligatures.

I have thought good also to delineate the following Engine, made for to draw and extend more powerfully, when the hand will not serve. It is made like a Pulley, marked with these letters D D. Within this there lyeth hid three wheeles, through whose furrowes runnes the rope which is to be drawne, marked with this letter H. At the ends of the Pulley are hooks fastened, the one of which is to fasten the Pulley to a Poste, the other is to draw the ligature fastened to the part. The Boxes or Cases wherein the Pulley is kept, is made with B B. Their covers are marked with A A. A screw pin which may be twined, and so fastened to a Poste, that so one of the ends of the Pulley may be hooked thereto, is signed with C. A Gimblet
Some Practitioners in stead of this Pulley make use of the hereafter described Instrument, which they term *Mambrum versatile*, or a Hand-vice. The end thereof is fashioned like a Gimblet, and is to be twined into a Poste. Within the handle lies a screw with a hooked end, whereeto the string or ligature must be fastened. Now the screw-rod or male-screw runnes into the female by the twining about of the handle: and thus the ligature is drawne as much as will suffice, for the setting the dislocated bone.

*Mambrum versatile, or, A Hand-vice.*

Having delivered these things thus in generall, now I come to trate of the Luxations of each part, from the Jaw-bone even to the toes of the feet.

*Chap.*
Concerning Dislocations, or Luxations.

CHAP. VIII.

Of the Dislocation of the Jaw-bone.

Chap. VIII.

The cause.

Concerning Dislocations, or Luxations. Lib. 16

The Jaw-bone is dislocated by many occasions, and not seldom by yawning, and other more strong openings of the mouth. It is more frequently luxated into the forepart, than into the hinder part, by reason of the mammillarie additaments, which hinder it from falling backwards. The dislocation is sometimes but on one side, otherwhiles on both. If the one side only be luxated, it (together with the chin) is drawn awry unto the contrary side which is not dislocated; the place is hollow from whence it is flown, but twine whither it is gone, the Patient cannot that his mouth, but is forc'd to gape, so that he cannot eate; the Jaw, together with the teeth therein, hangs somewhat forwards: neither doth the teeth answer fitly to one another, but the Dogge-teeth are under the theaers. But if both sides be dislocated, all the Jaw and Chin hang forwards and towards the breast; besides also, the temporall muscles appear distended, spitlce runnes out of the Patients mouth against his will, the lower teeth stand further forth than the upper, which is the occasion that the mouth cannot be shut, neither the tongue have free volubilitie to speake, the Patient flammering in his speech. When it is dislocated on both sides, it is more difficultly restored, and all the symptomes are more vehement; wherefore it must bee set with all speed, otherwise the Patient will presently have grievous paine about his throat, inflammation, whereupon oft times death ensues within ten dayes, by reason of the quicky ensues five branches of netves, which, arisong from the seconde and fifth conjugation of the braine, are distributed into the moving muscles thereof, which, too violently extended, bring the forementioned symptomes. Practitioners affirme, that the twelve dayes after it is set, is free from the danger of relapse. If it have beene dislocated some few dayes, before you goe about to restore it, you must use fortening and relaxing medicines to it: but when it is put in the joint, apply a medicine made of the whites of egges, and oil of roses, to asswage paine, and apply clothes dipped in oxycrate. At the second dressing you shall apply such things as have power to agglutinate and strengtheine the ligaments and other relaxed parts, and also to keep it being restored in its place. This shall be the forme of such a medicine.

R. Pulv. beli armeni, fang. dracoris, farina volat. muslibi. piss. resina, al. 5, 8. albuminis ovorum g. s. f. fis medicamentum: afterwards you may use Emplast. Dicolesithes diffolved in oyle of Roses and Vinegar, and other things, as occasion shall bee.

CHAP. IX.

How to set the Jaw dislocated forwards on both sides.

The first manner of setting a jaw-bone.

Lift of all the Patient must bee placed upon the ground, or some lowe seat with his face upwards, and his head must be firmly held by your servant, that so it may be the more immovable: then the Surgeon shall put both his thumbs, wrapped in clothes (left hee hurt them by rubbing them upon the Patients teeth, as also to keep them from slipping into the Patients mouth, and preffe with them the larger teeth of the luxated Jaw, but put his other fingers without under his chin, & so lift up the whole Jaw with them. But if the operation cannot be thus done, for that the mouth on the inside is so shut and closed that the thumbs cannot bee put thereinto, then must you thrust in woodden wedges made of soft wood, as hazle or firre, being cut square, and of some fingers thickneffe. These shall bee wedged in on each side above the grinders; then cast a ligature under his chin, whose ends your servant shall hold in his hands, and letting his knees upon the Patients shoulders, shall pull them upwards; then at the same time the Surgeon shall preffe
Concerning Dislocations, or Luxations.

prefe downwards the wooden wedges. The jaw-bones thus restored, shall be kept so by convenient ligation, and dressed with medicines, as it is fitting, and in the mean space you must forbid the Patient to speake, or needlessly to open his mouth. Wherefore he must abstain from hard meats, and such as require much chewing, until his paine be quite pasted, and use only spoon-meats, as barley-creames, pomegranates, jellies, collafes, brothes, and the like.

CHAP. XI.

Of restoring the Jaw dislocated forwards but on one side.

He Patient must be placed on a lowe seat, so that hee may be under the Surgeon's eye. Then your servant, standing at his back, shall hold his head steady, that it may not follow the Surgeon drawing, extending, and doing other things necessarie for restoring it. Then the Surgeon, putting his thumb between the grinders, shall press down the jaw, and gently drawing it aside, force it into its cavitié: in the mean while, also the Patient, as much as in him lies, shall help forwards the Surgeons endeavour, in opening his mouth as little as he can, left the muscles should be extended; and hee shall only gape so wide as to admit the Surgeons thumbe, for so the temporall muscles shall be restored to their place, and favour the restitution. If hee open his mouth as wide as hee can, they will be extended after a convulsive manner; if on the contrarie he shut his teeth too close, there will be no passage for the Surgeons Thumbe unto his grinding teeth. Some there bee which affirme, that the jaw-bone may sometimes be dislocated towards the hinder part, and that then the mouth is so close shut, that the Patient cannot open it nor gape, and that the lower ranke of teeth stands further in, and nearer the throat than the upper. Now for restoring it, the Patient's head must be strictly holden behinde, whilst the Surgeon, the maine while putting both his thumbs into the Patients mouth, holding his other fingers without under the parties chin, hee shall, by shaking it, draw it to him, or forwards, and so restore it to its place. For my own part, I confesse I never saw this kind of Luxation, and I easilie peruse my felie, that it can scarce ever happen, for the reason I gave in the former Chapter. But neverthelesse, if it by any means chance to happen, yet it can not be a perfect Luxation, but an imperfect one; the jaw being onely but a little thrust backe to the throat to those mammillarie aditaments. And then it may easilie be restored by lifting or drawing forth the jaw, and suddenly forcing it from below upwards.

CHAP. XI.

Of the Luxation of the Collar-bone.

As the Collar-bones may be broken, wrested and crooked, so also they may be dislocated. Now they are dislocated, either against the sternum; or against the shoulder-blade, or astrum; thereof: yet both these kinds of dislocations are very rare, by reason of the frail and finne connexion which the Collar-bone hath with the forefaid parts; but chiefly where it is joyned to the sternum, it can scarce be depreft, for that it is as it were underpropt with the first rib. But it may be dislocated inwardly, outwardly, and side-wise, and according to this varietie there must be divers waies to restore it; yet generally the Collar-bone is put into its place by moving or extending the arm. But if need require, the Patient shall be layd upon the ground with his face upwards, a Tray with the bottome upwards, a hard stuffed Cushion, or the like thing being put under his shoulders: for thus it wil fo come to passe, that the shoulder and
Concerning Dislocations, or Luxations.

Concerning Dislocations, or Luxations.

Concerning Dislocations, or Luxations. But it will be requisite to bind it up, and lay boulsters thereon, and to give it rest, as if it were fractured. Galen writes, that when he was five and thirty years old, whilst he exercised himself in the place of Exercise, his Collar-bone was so farre separated from the Sternum, that there was the space of three fingers between them. And that this Luxation was restored in fortie days space, by so strait and strong a Ligation, that he perceived the motion of the beating arteries under the bone. But you shall finde verie few, who will suffer such strait ligation so long, though it be never so necessarie. Verily, this kind of Luxation is hard to be known, but farre more difficult to be healed. I have known many Surgeons deceived, who have taken the Luxation of the Collar-bone for the dislocation of the top of the shoulder. For then the Epiplum or toppe of the shoulder swells, and the place from whence the Collar-bone is nownc, is deprefted with a manifest cavity, with vehement paine, inflammation, and impotency of lifting up, or otherwise moving the arme, or performing other actions which are done by the help of the shoulder. Certainly, if this bone, when it is dislocated, be not set, the Patient shall be lame during his life, so that hee shall not be able, nyether to put his hand to his head nor mouth.

CHAP.XII.

Of the Luxation of the Spine, or Back-bone.

The variety of the processes of the Spine.

Galen. de ufp. paGium.

Liber. de ufp. paGium.
Concerning Dislocations, or Luxations.

That there is nothing to be found in the whole structure of Man's bones, which more clearly manifests the industry of God's great workmanship, than this composure of the Spine and the vertebra thereof.

Of the Dislocation of the Head.

The head stands upon the necke knit by dearticulation to the first vertebra thereof, by the interpolation of two processes which arise from the basis thereof, near the hole through which the marrow of the braine passeth downe into the backe bone, and they are received by fit cavities, hollowed in this first vertebra. These processes sometimes fall out of their cavities, and cause a dislocation behinde, whereby the spinal marrow is too violently and hard compressed, bruised and extended, the chin is fastened to the breast, and the Patient can neither drink nor speak: wherefore death speedily followeth upon this kind of Luxation, not through any fault of the Surgeon, but by the greatness of the disease, refusing all cure.

Of the Dislocation of the Vertebrae, or Rack-bones of the neck.

Such, whether dislocation or straine, is thus restored. The Patient must be let upon a lowe seat, and then one must lean and lye with his whole weight upon his shoulders; and the mean while the Surgeon must take the Patients head, about his ears, betwixt his hands, and so shake and move it to everie part, until the vertebra be restored to its place. We may know it is set by the ceasing of the pain, which before grievously afflicted the Patient, and by the free turning and moving his head & neck everie way. After the restoring it, the head must be inclined to the part opposite to the Luxation, and the neck must be bound up about the dearticulation of the shoulder; but yet so, that the ligature bee not too strait, left by pressing the weapon and gullet, it straiten the passages of breathing and swallowing.

Of the Dislocation of the Vertebrae of the back.

The rack bones of the backe may bee dislocated inwards, outwards, to the right side, and to the left. We know they are dislocated inwards, when as they leave a depreffed cavite in the spine; outwards, when they make a bunch on the backe; and wee know they are luxated to the right or left side, when as they obliquely bunch forth to this or that side. The vertebra are dislocated by a cause.

See 2

cause
Concerning Dislocations, or Luxations.

The danger of a vertebra dislocated inwards.

Concerning Dislocations, or Luxations, the internal, as is common to all other Luxations; the internal is either the defluxion of humors from the whole body, or any part to them and their ligaments; or else a congestation proceeding from the proper and native weakness of these parts; or an attraction arising from pain and heat. The external is a fall from high upon some hard body, a heavey and bruising blow, much and often floooping, as in Dresters and Lookers to Vineyards, and Paviers, decrepitive old men, and also such, as through an incurable dislocation of the Thigh bone, are forced in walking to floope downe, and hold their hand upon their thigh. But a vertebra cannot be forced or thrust inwards, unlese by a great deal of violence; and if it at any time happen, it is not but with the breaking of the eyes and ligaments, for they will break rather than suffer so great extension. Such a dislocation is deadly, for that the spinall marrow is exceedingly violated by too strait compression, whence proceeds dulness and loss of sense in the members lying thereunder.

Neither is restitution to bee hoped for, because we cannot through the belly force it into its place: the urine is then suppressed, as also the excrements of the bladder, sometimes on the contrary, both of them break forth against the Patients mind, the knees and legges grow cold, their sense and motion being lost. Such things happen more frequently, when the spine is luxated inwards, than when it is dislocated outwards, for that the nerves, thence arisitng, runne and are carried more inwardly into the bodie. Besides, the pressid Spinall marrow becomes inflamed; and that being inflamed, the parts of the same kinde, and such as are joyned thereto, are also inflamed by content, whence it happeneth, that the bladder cannot cast forth the urine. Now where the sinewes are pressid, they can no more receive the irradiation of the animal facultie. Hence followes the deprivation of the sense and motion in the parts whereunto they are carried, therefore the contained excrements doe no more provoke to expulsion by their troublesome sense, neither are pressid to keep them in; thence proceeds their suppression, and hence their breaking forth against their wills. But the spine outwardly dislocated, fairece causes any comprefion of the marrow or nerves.

Chap. XVI.

How to restore the Spine outwardly dislocated.

The cure.

He vertebra outwardly dislocated, when as they stand bunching forth, then it is fit to lay and stretch forth the Patient upon a table, with his face downe-wards, and straitly to binde him about with towels under the arm-pits, & about the flanks and thighes. And then to draw and extend, as much as we can, upwards and downe-wards, yet without violence: for unlese such extension be made, restitution is not to be hoped for, by reason of the processes and hollowed cavities of the vertebra, whereby, for the fatter knitting, they mutually receive each other. Then must you lye with your hands upon the exuberancie, and force in the prominent vertebra. But if it cannot be thus restored, then will it bee convenient to wrap two pieces of wood, of foure fingers long, and one thick, more or lesse, in linnen clothes, and fo to apply one on each side of the dislocated vertebra, and fo with your hands to press them against the bunching forth vertebra, until you force them backe into their seats, just after the manner you see it here delineated.
In the mean while have a care, that you touch not the processes which stand up in the ridge of the Spine, for they are.easily broken. You may know that the vertebra are restored by the equal smoothness of the whole Spine. It is first, after you have restored it, to bine up the part, and lay splints or plates of Lead neatly made for that purpose upon it, but so that they may not prefile the cruts or middle processes of the vertebra, which I formerly mentioned, but only the fides: then the Patient shall be layd upon his backe in his bed, and the splints long kept on, left the vertebra should fall out againe.

CHAP. XVII.

A more particular inquiry of the Dislocation of the Vertebra, proceeding from an internall cause.

The vertebrae are in like fort luxated by the antecedent cause, as wee have formerly said, which is caused by the natural imbecillitie of the parts; principally of the nervous ligament, by which all the vertebrae are bound each to other; this ligament comes not to the spinall marrow, but only bindes together the vertebra on their outsides. For, besides the two membranes proceeding from the two Meninges of the Braine, wherewith the marrow is covered, there is a third strong and nervous coat put upon it, left, whilst the spine is diversely bended, the bended marrow should be broken. This third coat arises from the pericranium, as foon as it arrives at the first vertebra of the necke. Now that Ligament, where with we said the jointes of the vertebra were mutually knit and fastened, is encompassed with a tough and glutinous humor for the freer motion of the vertebra. Sometimes another cold, erude, froide and vitive humor, confufed and mixed herewith by great inflations and catarrhes, begets a tumor, which doth not only diftend the nerves proceeding forth of the holes of the vertebra, but also diftends the ligaments wherewith they are bound together: which so diftended, and (as it were) drawne aside, do draw together with them the vertebra, one while towards the right fide, another while to the left, somewhiles inwards, somewhiles outwards, and thus move them out of their seats, and dislocate them. A dislocated vertebra, standing forth and making a bunch, is termed in Greeke Cyphoetis; (Thomas thus affected we may call, Bunch backe.) But when it is depressed, it is named Lordoetis, (Such we may terme, Saddle backe.) But when the fame is luxated to the right or left fide, it make an Scolioetis (or Crookedneffe,) which wretting the spine, draws it into the fimilitude of this letter S. Galen addes a fourth default of the vertebra, which is, when their jointes are moved by reacon of the loofeness of their ligaments.
Conceiving Dislocations, or Luxations.

Concerning Dislocations, or Luxations.

They also note another defect peculiar to the spinal marrow, which is, when the vertebra being not moved where it adheres, is plucked and severed from them: this dislocation is occasioned by a fall from on high, by a great stroke, and by all occasions which may much shake, and consequently depress the spinal marrow, or by any other means remove, or put it forth of its place. Scarce any recovers of this dislocation, for many reasons, which any excercised in the art, may easily think upon. But let us returne to the internall cause of Luxations. Fluid and soft bodies, such as Childrens, usually are very subject to generate this internall cause of defluxion. If externall occasions shall concur with these internall causes, the vertebra will sooner be dislocated. Thus Nurses, whilst they too straitly lace the breasts and sides of girls, so to make them slender, cause the breast-bone to cast its selfe in forwards or backwards, or else the one shoulder to bee bigger or fuller, the other more squire and lean. The same error is committed, if they lay children more frequently and long upon their sides, than upon their backs; or if, taking them up when they wake, they take them only by the feet or legges, and never put their other hand under their backs, never so much as thinking that children grow most in their heads.

Chap. XVIII.

Prognosticks of the Dislocated Vertebra of the backe.

In Infancie it happen that the vertebra of the backe shall bee dislocated, the ribs will grow little or nothing in breadth, but runne outwards before; therefore the chest lofeth its natural latitude, and stands out with a sharp point. Hence they become asthmaick, the lungs and muscles which serve for breathing, being presseed together and straitened; and that they may the easie breath, they are forced to hold up their heads, whence also they seeme to have great throats. Now because the weazon being thus presseed, the breath is carried through a strait passage; therefore they wheafe as they breath, and snort in their sleepe, for that their lungs, which receive and send forth the breath or ayre, be of lesse bignesse: besides also, they are subject to great distillations upon their lungs, whereby it commeth to pass, that they are shorter lived. But such as are bunch-backed below the midriff, are incident to diseases of the kidneys and bladder, and have smaller and slenderer thighs and legges, and they more slowly and sparingly cast forth hair and have beards; to conclude, they are lesse fruitfull, and more subject to barrenesse than such as have their crookednesse above their midriffe. The Bunches which proceed from externall causes are oftentimes cureable, but such as have their originall from an inward cause are absolutely incurable, unless they be withstood at the first with great care & industrie. Wherefore such as have it by kinde, never are helped. Such as, whilst they are yet Children, before their bodies bee come to perfect growth, have their Spine crooked and bunching out, their bodies ufc not to grow at the Spine, but their whole body, but the neighbouring parts only are infected with the contagion of this evil. When divers vertebra, following each other in order, are together and at one time dislocated, the dislocation is lesse dangerous, than if one alone were luxated. For, when one only vertebra is dislocated, it carries the spinal marrow so away with it, that it forces it almost into a shapre angle; wherefore being more straitly presseed, it must necedarily bee either broken or hurt, which is absolutely deadly.
MAP.IX.

Of the Dislocation of the Rumps.

He Rump oft times is after a fort dislocated inwards by a violent fall upon the buttocks, or a great blow; in this accident the Patient cannot bring his heele to his buttocks, neither, unless he with much force, bend his knee. Going to floole is painefull to him, neither can he sit unless in a hollow chair. That this (as it were) dislocation may bee restored, you must thrust your finger in by the Fundament, even to the place affected, as we have said in a fracture; then must you strongly raise up the bone, and with your other hand at the same time joyn it rightly on the outside with the neighbouring parts; lastly it must be strengthened with the formerly mentioned remedies, and kept in its place. Now it will bee recovered about the twentieth day after it is fed. During all which time the Patient must not goe to floole, unless siting upon a hollow seat, left the bone, as yet scarce well recovered, should fall againe out of its place.

CHAP.XX.

Of the Luxation of the Ribs.

The Ribs may by a great and bruising stroke bee dislocated, and fall from the vertebrae whereo they are articulated, and they may bee driven inwards, or side-ways. Of which kind of Luxation, though there be no particular mention made by the Ancients, yet they confeque, that all the bones may fall, or be removed from their feats or cavities, wherein they are received and articulated. The signe of a Rib dislocated and slipped on one side, is a manifest inequality, which here makes a hollowneffe, and there a bunching forth; but it is a signe that it is driven in, when as there is only a depressed cavie where it is knit and fastened to the vertebra. Such dislocations cause divers symptomes, as difficulty of breathing, the hurt rib hindring the free moving of the chest, a painfullneffe in bowing downe, or lifting up the bodie, occasioned by a paine counterfeiting a pleurie, the rising or puffing up of the mucus flieh about the rib, by a mucous and flatulent humor there generated; the reasons whereof we formerly mentioned in our Treatise of Fractures. To withfand all these, the dislocation must bee forthwith restored, then the puffing up of the flesh must bee helped. Wherefore, if the dislocated Rib shall fall upon the upper side of the vertebra, the Patient shall be set upright, hanging by his armes upon the toppe of some high doore or window; then the head of the rib, where it stands forth, shall be pressed downe, until it be put into its cavity. Againue, if the rib shall fall out upon the lower side of the vertebra, it will be requisite, that the Patient bend his face down-wards, letting his hand upon his knees; then the dislocation may be restored by pressing or thrusting in the knot or bunch which stands forth. But if the luxated rib fall inwards, it can no more be restored or drawn forth by the hand of the Surgeon, than a vertebra which is dislocated towards the inside, for the reasons formerly delivered.
He shoulder is easily dislocated, because the ligaments of its disarticulation are soft and loose; as also for that the cavities of the shoulder-blade is not very deep; and besides, it is everywhere smooth and polite, no otherwise than that of the shoulder-bone, for that it is herein received. Add hereunto, that there is no intermally ligament from bone to bone, which may strengthen that disarticulation, as is in the leg and knee. Wherein notwithstanding, we must not think nature defective, but rather admire God's providence in this thing: for that this disarticulation serves not only for extensión and bending, as that of the Elbow, but besides for a round or circular motion, as that which carries the arm round about, now up, then down, according to each difference of fire. The shoulder-bone, which Hippocrates calls the Arme-bone, may be dislocated four manner of ways; upwards, downwards, or into the Arme-pit, forwards and outwards, but never backwards, or to the hinder part. For, seeing that there the cavity of the blade-bone, which receives the head of the arm-bone, which Hippocrates calls a Joint, lies so and stands against it, who is it that can but imagine any such dislocation? In like sort it is never dislocated inwardly, for on this part it hath the flesh of a strong muscle, termed Deltoide, lying over it, besides also the back and acromion of the blade, and lastly, the anker-like or beake-like process, all which four hinder this joint from slipping inwards. Now Hippocrates asserts, that he hath only seen one kind of Dislocation of this bone, to wit, that which is down-wards or to the arme-pit; and certainly it is the most usual and frequent, wherefore we intend to handle it in the first place. When the shoulder is dislocated down-wards into the arme-pit, a depressed cavitate may be perceived in the upper part of the joint, the acromion of the Blade shows more sharpe and standing forth than ordinarie, for that the head of the shoulder-bone is slipt downe, and hid under the arme-pit, causing a swelling forth in that place; the Elbow also cafts it selfe (as it were) outwards, and stands further off from the ribs; and though you force it, yet can you not make it to touch them: the Patient cannot lift up his hand to his ear on that side, nor to his mouth, nor shoulder. Which signe is not peculiar to the luxated shoulder, but common to it, affected with a contusion, fracture, inflammation, wound, abceele, eurrheus, or any defection upon the nerves, arising out of the vertebra of the neck, and sent into the arme: also this arme is longer than the other. Lastly (which also is common to each difference of a luxated shoulder) the Patient can move his arme by no kind of motion without sense of paine, by reason of the extended and prested muscles, some also of their fibres being broken. There are sixe ways to restore the shoulder luxated down-wards into the arme-pit. The first is, when it is performed with ones fist, or a towel. The second, with a clew of yanne, which put under the arme-pit, shall be thrust up with ones heele. The third, with ones shoulder put under the arme-hole, which manner, together with the fist, is most fit for new and easily to be restored luxations, as in those who have loose flesh, and effeminate persons, as children, eunuches, and women. The fourth, with a ball put under the arme-pit, and then the arme cast over a piece of wood held upon two mens shoulders, or two standing pofts. The fifth, with a ladder. The sixth, with an instrument, called an Ambi. We will describe these five waies, and present them to your view.
Chap. XXII.

Of the first manner of setting a Shoulder, which is with bones fit.

First, let one of sufficient strength, placed on the opposite side, firmly hold the Patient upon the joint of the Shoulder, lest he move up and down with his whole body, at the necessary extension, working and putting it in: then let another, taking hold of his arm above the elbow, so draw and extend it downwards, that the head thereof may be set just against its cavity, hollowed in the blade-bone. Then at last let the Surgeon lift and force up with his fist the head of the bone into its cavity. Here this is chiefly to be observed, that in fresh luxations, especially in a body soft, effeminate, moist, and not over corpulent, that it sometimes comes to pass, that by the only means of just extension, the head of the bone, freed from the muscles and other particles wherewith it was, as it were, intangled, will betake it itself into its proper cavity; the muscles being by this means restored to their place and figure, and drawing the bone with them, as they draw themselves towards their heads, as it were with a sudden gird or twitch: wherefore in many, whilest we thought no such thing, it sufficed for restitution only to have extended the arm. But if the Luxation be inveterate, and the hand cannot serve, then must the Patient's shoulder be fastened to a Pole with the forementioned Ligature, or else committed to one's charge, who may stand at his back, and hold him fast. Then the arm shall presently be tied about, a little above the elbow, with a fillet, whereunto a cord shall be fastened, which, being put or fastened to the Pulley, shall be drawn or stretched forth, as much as need shall require. Lastly the Surgeon, with a towell, or such like Ligature, fastened about his neck, and hanging down, and fo put under the Patient's arm-pit near to the Luxation, shall, raising himself upon his feet with the whole strength of his neck, lift up the shoulder, and also at the same time bringing his arm to the Patients breast, shall set the head of the shoulder-bone, forced with both his hands into its cavity, as you may see by this ensuing figure.

An expression of the first manner of putting a Shoulder into Joynt.

Then must you cover all the adjacent parts with a medicine made of farina v Oleata, bals armeni, myrrhis, pice, resin & alumina, beaten into powder, and mixed with
Concerning Dislocations, or Luxations.

with the white of an egg. Then must the hollowness under the arm be filled with a clew of Woolen or Cotton yarn, or a linen cloth filled over with a little oyle of Roses or Myrtles, a little vinegar, and unguentum resatum, or inf rigidans Galeni, left it stick to the hair, if there be any there. The part must afterwards be bound up with a ligature, consisting of two heads, of some five fingers breadth, and two ells long, more or less, according as the bodie shall require. The midst thereof shall be put immediately under the arme-pit, and then crost under the same shoulder, and so crosting it as much as halbe fit, it shall be wrapped under the opposite arm. And lastly, the arme shall be laid upon the breast, and put in a scarf, in a middle figure almost to right angles, so that by lifting up the hand he may almost touch his found shoulder, lest the bone, newly set, may fall out again; neither shall the first dressing be further till four or five daies be past, unless the greatnesse of some happening symptome divert us from this our purpose.

Chap. XXIII.

Of the second manner of restoring a Shoulder, that is, with the heel; when as the Patient by reason of paine can neither sit, nor stand.

He Patient must be layd with his backe on the ground upon a Cover-lid, or Mat, and a clew of yarn or leathern-ball, stufft with tow or cotton, of such bignesse as may serve to fill up the cavitie, must be put under his arm-pit, that so the bone may straightsways the more easilie be forced by the heel into its cavitie. Then let the Surgeon fit beseide him, even over against the luxated shoulder; and if his right shoulder be luxated, he shall put his right heel to the ball, which filled up the arme-pit; but if the left, then the left heel: then let him forthwith draw towards him the Patients arme, taking hold thereof with both his hands, and at the same instant of time strongly preffe the arme-pit with his heel. Whilst this is in doing, one shall stand at the Patients backe, who shall lift up his shoulder with a towel, or some such thing fitted for that purpose, and also with his heel preffe downe the top of the shoulder-blade: another also shall fit on the other side of the Patient, who, holding him, shall hinder him from stirring this way or that way, at the necessary extension in setting it, as you may see it express by the following figure.

The expression of the second manner of restoring a Shoulder.
Concerning Dislocations, or Luxations.

CHAP. XXIV.

Of the third manner of restoring a Shoulder.

Some one who is of a competent height and strength shall put the sharpest part of the rope of his shoulder under the Patient's armpit, and also at the same time shall somewhat violently draw his arm toward his own breast, so that the Patient's whole body may (as it were) hang thereby. In the meantime another, for the greater impression, shall lay his weight on the luxated shoulder, shaking it with his whole body. Thus the shoulder, drawn downward by the one which stands under the armpit, and moved and shaken by the other, who hangs upon it, may be restored into its seat, by the help of the Surgeon concurring therewith, and with his hand governing these violent motions, as the following figure shews.

The figure of the third manner of putting a Shoulder into Joint.

CHAP. XXV.

Of the fourth manner of restoring a dislocated Shoulder.

You must take a perch, or piece of Wood (somewhat resembling that which the Water-bearers of Paris use to put on their shoulders) some two inches broad, and some five feet long; in the midst hereof let there bee fastened a clew of yarne, or ball of sufficient sized to fill up the cavity of the armpit. Let there be two pins put in; one on each side of the ball, each alike different therefrom, which, as with flaves, the shoulder may be kept in, and upon the ball, that it slip not away from it. Let two strong men, taller than the Patient, either by nature, or art, put this perch upon their shoulders; then let the Patient put his armpit upon that place where the ball stands.
Concerning Dislocations, or Luxations.

stands up, the Surgeon must be ready to pull his hanging arm downwards. Thus the Patient shall (as it were) hang on the perch with his shoulder, and so the head of the bone shall be forced into its cavity, as this ensuing Figure declares, wherein you may see the perch or yoke, with the two woodden pins and ball fastened in the midst, delineated by its selfe.

The figure of the fourth manner of restoring the Shoulder.

Chap. XXVI.

Of the fifth manner of putting the Shoulder into joint, which is performed by a Ladder.

You may also restore a Shoulder dislocated into the Arm-pit, by the helpe of a Ladder, after the following manner. Let some round body, as a ball, or clew of yarne, which (as we formerly said) may serve to fill the Arm-pit, be fastened upon one of the upper steps of a Ladder; at the foot of the Ladder set a low stool, whereupon let the Patient mount, then binde both his legs, and also his sound arm behind his back, left, when you are about your operation, he hinder and spoyle all you doe, by laying his hand, or setting his foot upon the Ladder. Then let his Arm be presently put over the step of the Ladder, and his Arm-pit put upon the there fastened ball, the Patient in the meanes while being wil'd to come with his whole body as near unto the steps of the Ladder as he is able; for otherwise, besides that there is no other hope of restoring the Luxation, there would bee no small danger of breaking the shoulder-bone. Also let him take heed, that he put not his head betwixt the steps. Then his Arm, bound above the Elbow with filleting, or some other ligature fit for that purpose, shall be drawne downe by the hand of some that assist you, and at the same time let the stool be pluck'd from under his feet, so that he may hang upon the Ladder. Thus by this meanes the head of the Shoulder will bee restored by its selfe, the endeavour of the Surgeon assisting, and preffing downe the Shoulder.
shoulder-blade, and moving it to and againe. The bone being set, the floole, which a little before was plucked from under the Patients feet, shall be put there againe, that he may, with the more ease and lesse paine, pull backe his Arme from the step of the Ladder. For if he should lift it high up to draw it over, there would be danger, left being newly set, and not well stayed, the head of the bone might fall out againe. I have thought good to have all these things here expressed, that you may learne this operation, as if you see it done before you.

The delimitation of the fifth manner of restoring a Shoulder.

I have not thought fit in this place to omit the industry of Nicholas Picart, the Duke of Guife his Surgeon, who being called to a certaine Country-man to set his Shoulder being out of joynt, and finding none in the place besides the Patient and his wife, who might assist him in this worke, he put the Patient, bound after the formentioned manner, to a Ladder, then immediately hee tyed a fladle at the lower end of the Ligature, which was fastened about the Patients armes above his Elbow, then put it foryed under one of the steps of the Ladder, as low as he could, and got affide thereupon, and sate thereon with his whole weight, and at the same instant made his wife to plucke the floole from under his feet; which being done, the bone presently came into its place, as you may see by the following figure.
Concerning Dislocations, or Luxations.

Another figure expressing the fourth manner of restoring a dislocated Shoulder.

Another figure to the same purpose.

If you have never a Ladder, you may use a piece of Wood, laid a-croffe upon two Posts. Also you may use a doore, as the other figure shewes, wherein you must observe a flat piece of Wood or spatula with firings thereat, whole use shall be shewne in the following Chapter.

Chap. XXVII.
The sixth manner of restoring a Shoulder, luxated into the Arme-pit.

Appocrates writes, that this is the best way of all to restore a dislocated Shoulder. You must take a wooden spatula of some foure or five fingers breadth, and some two fingers thickneffe or leffe; but some yard or thereupon long; the one end thereof must bee narrow and thin, with a round head standing up and lightly hollowed, that put under the Arme-pit, it may receive part of the head of the shoulder-bone, the which for that purpose must not bend towards the ribs, but to the top of the Shoulder. This upper part of the spatula must bee wrapped about with a linen or woollen ragge, or some such soft thing, that it may be the softer, and hurt the leffe; and then it must be so thrue under the Arme-pit, that it may thoroughly penetrate into the inner part betweene the ribs, and the head of the Shoulder-bone. There must, besides in this spatula, be two holes in three severall places, each alike distant from other, through which let soft firings be put, whereby it may be tyed to the arme, stretched all the length thereof even to the fingers, in one place a little below the head of the shoulder-bone, in another a little above the elbow, and the third at the wrist, that so they may hold it firme. Therefore let the distances of the holes bee fitted to this purpose, but principally you must have a care of this, that the upper part of the spatula,
Concerning Dislocations, or Luxations.

615

...reaching beyond the head of the arm, enter even to the innermost cavity of the arm-pit; then, a croff pin or piece of wood must be made fast through two poles or a frame, & well fastened thereto, and therupon the Arm with the spatula must be put over, that the pin may be under the arm-pit, the body weighing one way, and the arm another: which being done, the arm must be drawn down one way, and the body another about the pin. Now this crofle pin must be put on such a height that the patient may stand on tipp-toes. Now this is the very best way of restoring a shoulder. In stead of two poles or a frame, you may make shift with a ladder, doore, beds postes, and such like things as shall bee there present. I have heard Henry Arvett, a very good surgeon of Orleans say, that he never attempted this manner of putting into joint a shoulder dislocated into the arm-pit without good success, unlefe by chance (which also is noted by Hippocrates) that the flesh is grown into the cavity, and the head of the bone hath made it selfe another cavity in the place whereinto it is fallen; for in this case the bone will either not bee restored, or else not remaine in its place, but fall backe notwithstanding into the new hollowed cavity, which serves it in stead of its naturall focket or cavity. But I must here admonish young Surgeons, that if the bone be not restored at the first endeavouer and oner, that they doe not desaire and presently deffay from their intended operation, but they must wind about, and gently move the joint: for so at the length it will bee more easily moved, and enter into the naturall cavity. When it is in, it must be bound up with compresses and rowlers after the forementioned manner.

To the former figures I have thought good to addde this, which expresseth the manner of restoring a shoulder luxated into the arm-pit with a spatula, after the manner of Hippocrates. This spatula fastened with an iron pin to the standing frame may be turned, lifted up, and pressed downe at your pleasure. A. shews the wooden spatula, B. The frame or standing postes.

Hippocrates his Glossocomium termed Ambi.

For the more certaine use of this instrument the patient must fit upon a seat, which must be somewhat lower than the standing frame, that fo the spatula which is thrust into the arm-pit may be the more forcibly deprest, to to force in the head of the shoulder-bone: the patients feet must also be tyed, that hee may not raise himself up whilest the Surgeon endeavours to restore it. Now he shall then endeavour to restore it, when he shall have bound the stretched forth arm of the dislocated shoulder unto the spatula, & thrust the one end thereof under the flipped forth head of the shoulder bone, as wee have formerly shewed; for then by pressing downe the other end of the spatula which goes to the hand, the bone is forced into its cavity. You must diligently obserbe the wooden spatula, which therefore I have cauied to be ex...
Concerning Dislocations, or Luxations.

Pressed by itself, which Hippocrates calleth Ambi, whose head is a little hollowed where it is noted with this letter B. The whole sparsula is marked with this letter A. with three strings hanging thereat, provided for the binding of the arm, that it may be kept steady, as you may perceive by the ensuing figure.

The figure of an Ambi fitted to a dislocated shoulder.

There are other additions to this Ambi, whose figure I now exhibited to your view, by the invention of Nicholas Picart the Duke of Lorraine's Surgeon, the use and knowledge whereof, bestowed upon me by the inventor himself, I would not envious the studious reader.

Another figure of an Ambi with the additions.
Concerning Dislocations, or Luxations.

AA. Shew the two cares, as it were, stops made to hold and keep in the top of the shoulder, left it should slip out when it is put into the frame or supporter.

BB. The frame or supporter whereon the Ambi rests.

CC. The pin or axle tree which fastens the Ambi to the supporter.

DD. Screw-pins to fasten the foot of the supporter that it shirre not in the operation.

EE. The holes in the foot of the supporter, whereby you may fasten the screw-pins to the floor.

CHAP. XXVIII.

How to restore a shoulder dislocated forwards.

It is seldom that the shoulder is luxated towards the foreside; yet there is nothing so stable and firm in our bodies which may not be violated by a violent assault, so that those bones do also fall out of joints, whose articulations are strengthened for the firmer connexion with fleshly, nervous, gritty and bony tissues or bars. This you may perceive by this kind of dislocatod shoulder, strengthened as it were with a strong wall on every hand; to wit, the Acromion and the end of the collar bone, seeming to hinder it, as also the great and strong muscles, Epamin and Biceps, Hipposates, that up within the strict bounds of the lesser Asia, never saw this kind of dislocation, which was observed five times by Galen. I profess I have seen it but once, and that was in a certaine Nun, which weary of the Nunnery, cast herself downe out of a window, and bore the fall and weight of her body upon her elbow, so that her shoulder was dislocated forwards.

This kind of dislocation is knowne by the deprivation of the conformation or figure of the member, by the head of the shoulder wrenched out towards the breast, as also the patient cannot bend his elbow. It is restored by the same meanes as other cases of luxations of other parts, to wit, by strict holding, extending, and forcing in. Therefore the patient must be placed upon the ground with his face upwards, and then you must extend the shoulder otherwise than you doe when it is luxated into the arm-pit. For when it fell into the arm-hole, it is first drawne forwards, then forced upwards, until it bee brought just against the cavity whereunto it must enter. But in this kind of luxation, because the toppe of the shoulder is in the fore parts of the disarticulation that up with muscles, opened both to the outer, as also to the inner part, you must work to the contrary, to wit, to the hinder part. But first of all you must place a servant at the backe of the patient, who may draw backe a strong and broade Bandage about the arm-pit (such as is the Carchephas, which consists of two contrary and continued strings) lest that when the arm shall be extended, the shoulder follow: allo you must put a clew of yarne to fill up the armepit. Then must you extend the arm, cutting another ligature a little above the elbow, and in the interim have a care that the head thereof fall not into the arm-pit, which may be done both by putting the forementioned ligature under the arm, and drawing the head another way; then must you permit, by slacking your extension, the joint freed from the encompassing muscles, to be drawne and forced into its cavity, by the muscles forcible recoiling, as with an unanimous consent, into themselves and their originals, for thus it will easilie bee restored, and such extension onely is sufficient thereto.
Of the Shoulder Luxated Outwardly.

He dislocation also of the shoulder to the outward parts seldom happens; but yet, if it may at any time happen, the extension of the arm will be very difficult, but yet more difficult towards the outward part than towards the inward; there is a depressed cavity perceived towards the chest, but externally a bunching forth, to wit, in that part from whence the head of the shoulder-bone is fled. For the restoring hereof, the patient must bee laid flat on his belly, and the elbow must be forcibly drawn contrary to that whereunto it is fled, to wit, inwardly to the breast; and also the standing forth head of the arm-bone, must bee forced into its cavity, for thus it shall bee easily restored. But into what part forever the shoulder-bone is dislocated, the arm must be extended and drawn directly downwards. After the restitution fitting medicines shall be put about the joint. Let there bee somewhat put into the arme-pit which may fill it up, and let compresses or boulsters bee applied to that part to which the luxated bone fell; then all these things shall be strengthened and held fast with a strong and broad two headed ligature put under the arme-pit, and so brought acrosse upon the joint of the shoulder, and thence carried unto the opposite arme-pit by so many windings as shall be judged requisite. Then the arm must be put and carried in a scare to right angles, which figure must be observed not only in every luxation of the shoulder, but in each fracture of the arme also, for that it is less painefull, and consequently, such as the arme may stand the longest therein without moving.

Of the Shoulder Luxated Upwards.

He head of the shoulder also may sometimes bee luxated into the upper part. Which when it happens, it shews it selfe by bunching forth at the end of the Collar bone, the hollowness of the arme-pit is found larger than usuall, the elbow flies further from the ribs than when it fell downwards, now the arme is wholly unable to performe the usuall actions. It is fit for the restitution of such a luxation, that the Surgeon stoop downe, and put his shoulder under the patients arm, and then stand up as high as he can upon his feete, and therewithall press downe the head of the shoulder-bone into the cavity, or else make some other to doe it. Otherwise it is fit to lay the Patient upon his backe on the ground, and whilest some one extends the affected arme by drawing it downwards, the Surgeon with his owne hand may force downe the head of the bone into its cavity. The operation performed, the same things shall bee done as in other luxations, compresses being applied to that part whereunto the bone fled, and it being also bound up with ligatures. Now you may understand in these four foregoing kinds of dislocations, that the bone which was luxated is restored, by the found which shall bee heard as you force it in, by the restitution of the accustomed actions, which are perceived by the bending, extending, and lifting it up, by the mitigation of the paine, and lastly by the collation and comparing of the affected arme with the found, and by its similitude and equality therewith.
Concerning Dislocations, or Luxations.

Of the Dislocation of the Elbow.

He Elbow may also be four manner of ways dislocated, to wit, inwardly, outwardly, upwards and downwards. By the part which is inwardly dislocated, I mean that which looks towards the center of the body, when as the arm is placed in a natural figure, to wit, in a middle figure between prone and supine; I make the outward part, which is that contrary thereto. By the upper part I mean that which is towards the heaven, and by the lower that which is next to the earth: and by how much the joint of the elbow consists of more heads and cavities, than that of the shoulder, by so much when it is luxated it is the more difficultly set, and it is also more subject to inflammation, and to grow hard thereupon, as Hippocrates faith. Now the joint of the elbow is more difficultly dislocated than that of the shoulder, and more hardly set, for that the bones of the cubic and arm do receive and enter each other by that manner of articulation which is termed ginglymus, as we have formerly more at large treated in our Anatomy, and a little before in our treatise of fractures. The Elbow is therefore dislocated, for that the process of thereof are not turned about the shoulder-bone in a full or bend, and by an absolute turning. Wherefore if at any time the cubic be bent more straitly and closely than that the inner process can retain its place and station in the bottom of its form, the hinder process falleth out and is dislocated backwards. But when as the fore-process is extended more violently, and forced againe through the bottom of its cavity, it flyes and departs out of its place as beaten or forced thence, and this kind of luxation is farre more difficultly restored than the former: add unto hereunto that the utter extremity of the cubic, which is called Olecranon, is the higher, but the other inner is the lower, whence it is that every one can better and more easilly bend than extend their cubits. Therefore such a dislocation is caus'd by a more violent force, than that which is made to the inner side. The figure of this luxation is, the arm remains extended, neither can it be bent, for the inner process stays in the external cavity, which is hollowed in the bottom of the shoulder-bone, which formerly was possessed by the inner part of the other elbow. This makes the restitution difficult for that this process is kept, as it were, imprisoned there. But when it falleth out dislocated to the fore part, the arm is crooked, neither is it extended, and it is also shorter than the other. But if the elbow be fallen out of its place according to the other manner of dislocations, to wit, upwards or downwards, the natural figure thereof is perverted, for the arm is stretched forth, but little notwithstanding bending towards that part from whence the bone went, that is, figured after a middle manner between bending and extending thereof. What kinde ever of dislocation shall befall it, the action of the Elbow will neither be at all, or certainly not to the elbow well untill that it be restored to its former place; there is a swelling in the part whereto it is flowne, and a cavity there from whence it is fled, which also happens in the dislocations of all other parts. Furthermore, one dislocation of the Elbow is compleat and perfect, another imperfect. The latter as it easily happens, and through a small occasion, so it is easily restored; but on the contrary a perfect, as it hardly happens, and not unlesse with great violence, so it is not so easilly restored againe, especially if that you doe not prevent inflammation, for being inflamed it makes the restitution either difficult, or wholly impossible, principally that which falleth outwards.

How to restore the Elbow, dislocated outwards.

You may know that the elbow is dislocated outwards, if at any time you shall observe the arm to be distended, and not able to be bended. Wherefore you must forthwith undertake the restitution thereof, for feare of detraction and inflammation, which the bitterneffe of pain unlesse easeth, upon what part foreuer the luxation happen. There is one manner of restoring it, Care which...
which is, you must cause one to hold hard and steddy the patients arm a little under the joint of the shouder, and in the meanes while let the Surgeon draw the arm, taking hold thereof with his hand, and also force the shouder-bone outwards, and the eminency of the cubit inwards, but let him by little and little draw and extend the arm, wresting it gently this way and that way, that he may bring back the bone which fell out into its cavity. I have thus expressly delivered this, that the young Surgeon may understand, that the arm must not be bend for the restoring of this kind of dislocation, for restitution cannot to be hoped for, because by this kind of luxation the inner process of the cubit poiffeth the place of the exterior process in the cavity of the shouder-bone. Wherefore, whilst the arm is bend or crooked, the cubit is onely lifted up, and not drawn into its feat. But if we cannot attaine to the restitution thereof with our hands alone, you must cause the dislocated arm lightely bend to embrace a poife, then must the end of the cubit called Olecranum be tyes or bound about with a strong ligature or line, and then wrested into its cavity by putting a battoon or staffe into the ligature, as is demonstrated by this ensuing figure:

There is also another more exquifite way of restoring it, which is expressd by the latter figure, wherein a line of some inch breadth is cast about the Olecranum of the arme, embracing a poife or pillar, and it is drawn so long, untill the dislocated bone be brought into its feat. Now we know that the bone is returned into its place, and restored, when the paine ceaseth, and the figure and whole natural conformation is restored to the arme, and the bending and extending thereof is ease, and not painfull.
Chap. XXXIII.

Of the Dislocation of the Elbow, to the inside, and of a compleat and unconcealed luxation.

If the Elbow be dislocated to the inner part, the arm must be strongly and powerfully extended, then bended quickly and with sudden violence, so that his hand may fall upon his shoulder. Some put some round thing into the bough of the Elbow, and upon that doe suddenly force the Elbow to the shoulder, as we have formerly said. If the Cubit bone be only lightly moved out of its place into the upper or lower place, it is easily restored by drawing and forcing it into its cavity, after this following manner. Let two extend the arm, taking hold thereof at the shoulder and wrist, and each draw towards himself; and also the Surgeon (who shall there be prent) shall force the bone which is dislocated from that part whereunto it is bended, into the contrary: after he shall thus have restored it, he shall lay the arm in a straight angle, and so bine it up, and apply fit medicines formerly mentioned, and so let him carry it in a scarfe put about his necke, as we said in the dislocation of the shoulder. Hippocrates says, bids, that the patient, after it is set, shall often endeavour to bend his hand upwards and downwards, and also extend and bend his arm, yea, and also to attempt to lift up some heavy thing with his hand, so it will come to passe, that the ligaments of this joint may become more softe, ready, and able to performe their accustomed functions, and also the bones of the cubite and shoulder shall bee freed from the affection termed Ancylosis, whereof they are incident by the luxations of this part. Now Ancylosis is a certaine preternatural agglutination, co-agmentation, and as it were union of sundry and severall bones in the same joint, which afterwards hindereth the bending and extention thereof. Now, a Callus is generated in the Elbow sooner than in any other articulation, whether it remaineth out, or be put into joint, by reason that by rest and celation from the accustomed actions, a vitriol humor which is placed naturally in the joint, as also another which is preternatural, drawne thither by paine, drawer downe, and is hardened, and gleweth the bones together, as I have observed in many, by reason of the Idleneffe and too long rest of this part. Wherefore, that we may withstand this affection, the whole ligation must be loosed sooner and other then otherwise, that is to say, every third day, and then the patient arm must bee gently mov'd every way. Within the space of twenty; or twenty five daies, these restor'd bones recover their strength, sooner or later, according to the happening accidents. It is necessary also that the Surgeon know that the Radius or Wond sometimes falleth out when the cubite or Ell is wholly dislocated; wherefore hee must bee mindfull in setting the cubit, that hee also restore the Wond to its place; in the upper part it hath about proceffe lightly hollowed, wherein it receiveth the shoulder-bone: it hath also an eminencie which admiteth the two-headed muscles.

Chap. XXXIV.

Of the Dislocation of the Styloformis or bodkin-like croceffe of the cubit or ell.

He proceffe of the Ell called Styloides, being articulated to the wretch by Diarthrosis, by which it is received in a small cavity, is dislocated and falleth out sometimes inwards, somewhates outwards. The cause usually is the falling of the body from high upon the hands. It is restor'd, if that you force it into its seat, diligently bind it, and apply thereto very affringent and drying medicines. But yet, though you shall diligently performe all things which may bee done in dislocations, yet you shall never so bring it to passe that this bone shall be perfectly restored, and absolutely put into the place where hence it went; which...
thing we have read, observed by Hippocrates; when (faith he) the greater bone, to
wit, the Ell, is removed from the other, that is the wand, it is not easily restored to its
owne nature agayne; for that, seeing that neither any other common connexion of
two bones, which they call Synovysis or union, when it is drawne and durered.
may be reduced into its former nature, by reason these ligaments where-
with they were formerly contained, and as it were continued, are too violently di-
ferred and relaxed, whence it happens, that I have in these cases often observed
that the diligence and care of the Surgeon hath nothing availed.

CHAP. XXXV.

Of the Distociations,or Luxations.

He understand by the wrefl, a certaine bony body, consisting of a
composici of eight bones knit to the whole cubit by Diarthrosis.
For the wrefl considered wholly in its felke, is knit and articulated
with the Ell & wand: with that, against the little finger; with this,
against the thumb: for thus as it were by two connexions, the joint
is made more firme. Yet may it be dilleded inwardly, outwardly,
&towards the sides. We say it is luxated inwardly when the hand stands upwards,
but outwardly, when it is crooke in & cannot be extended. But if chance to be dis-
lacted sidewayes, it stands awaye either towards the little finger, or else towards the
thumbe, as the luxation befa to this or that side. The cause hereof may seem to de-
pend upon the different dearticulation of the Ell and wand with the hand or wrefl.
For the wand, which is articulated on the lower part with the wrefl at the thumbe,
by its upper part, while it receives the outward swelling or condyle of the Ell in its
cavity, performs the circular motions of the hands. But the cubit or ell, which in like
fort is connected on the lower part by Diarthrosis at the little finger with the wrefl,
being articulated on the upper part with the shouder-bone bends and extends, or
stretches forth the hand. There is one way to restore the formerly mentioned dislo-
cations. The arm on one side and the hand on another must be extended upon a hard
restitt and smooth place, so that it may lye flat: and you must have a care that the
part whence the dilleded bone fell bee the lower in its fire and place, and the part
whether it is gone, the higher. Then to conclude, the prominencies of the bones must
be preffed down by the hand of the Surgeon, untill by the force of preffion and
fire the luxated bones be thrust and forced into their places and cavities.

CHAP. XXXVI.

Of the dislocated bone of the Wrefl.

He wrefl consists of eight bones, which cannot uneasie by extraordinary
violence bee put or fall out of their places. Yet if they shall at any time
fall out, they will swill it by the tumour of the part where they are gone,
and by the depression of that wherefrom they are fled. They may bee
restored, if the dislocated hand bee extended upon a table; and if the bones
shall be dislocated inwards, the hand shall be placed with the palate upwards, then
the Surgeon shall, with the palate of his hand, preffe downe the eminenties of the
bones, and force each bone into its place. But if the luxation bee outwards, he shall
lay the palate next to the table, and preffe it after the same manner. To conclude, if
the luxation shall be toward either side, the luxated bones shall be thrust towards the
contrary, and the restored bones shall be prettily contained in their places with fit
remedies, binding, rowing, and carrying the hand in a fcarfe.
Concerning Dislocations, or Luxations.

Chap. XXXVII.

Of the dislocated bones of the After-wrest.

Here are four bones in the Palme or After-wrest, the two middlemost whereof cannot be dislocated sidewayes, because they are hindered and kept from falling slide by the opposition of the parts, as it were refining them. Neither can that which answereth to the little finger, nor that whereon the forefinger refts, bee dislocated towards that side which is next the middle bones, whereof we now spake, but only on the other side, freed from the neighbour-hood of the bones: but all of them may be dislocated inwardly and outwardly. They may be restored as those of the Wreft.

Chap. XXXVIII.

Of the dislocated Fingers.

The fingers may bee four several ways dislocated, inwardly, outwardly, and towards each side. To restore them, they must bee laid straight upon a table, and so put into joint againe. For thus they may bee easily restored, by reason their sockets are not deep, and their joints are shorter, and ligaments leefe and stronge. In twelve days space they will recover their strenght, as also those dislocations that happen to the Wreft and After-wreft.

Chap. XXXIX.

Of a dislocated Thigh or Hipp.

The Thigh or Hipp may be dislocated, and fall forth towards all the four parts. But most frequently inwards, next to that outwards, but very seldom either forwards or backwards. A subluxation cannot happen in this joint, as neither in the shoulder, especially from an external cause, contrary to which it usually happens in the elbow, hand, knee, and foot. The cause hereof is, for that the heads of the thigh and shoulder-bone are exactly round, and the sockets which receive them have certain borders and edges encompassing them: hereunto may be added, that strong muscles encompass each disarticulation, so that it cannot come to passe that part of the heads of such bones may bee contained in the cavity, and other parts stand or fall forth, but that they will quickly be restored to their places by the motion and wheeling about of the joint, and the strenght of the encompassing muscles. But a subluxation may seeme to happen in these parts from an internal cause. For then the ligaments and ties being softened and relaxed, cannot draw and carry back the head of the bone standing forth so far as the edges of the socket. If the Hip be dislocated towards the inner part, that leg becomes longer and larger than the other, but the knee appears somewhat lower, and looks outwardly with the whole foote, neither can the patient stand upon his leg. To conclude, the head of the Thigh-bone bewrayes it selfe lying in the groin, with a swelling manifest both to the eye and hand; now the legge is longer than that which is found, for that the head of the thigh is out of its socket or cavity, and situate lower, to wit, in the groin, therefore the leg is made by so much the larger. Now the knee stands forth, because necessarily the lower head of the thigh-bone stands contrary to the socket. For this is common to all dislocated bones, that when as the dislocation happens towards the one side, the other end of the bone flies out to the contrary.
Concerning Dislocations or Luxations.

Whence it is, that if the upper head of the Thigh-bone shall fall inwards, then the other head, which is at the knee, must necessarily look outwards. The like happens in other dislocations. The leg cannot be bended towards the ground, for that the dislocated bone holds the extending muscles of the same part so stiffly stretched out, that they cannot yield, or apply themselves to the benders. For flexion or bending ought to precede extension, and extension flexion.

Chapter XL.

Prognosticks belonging to a dislocated Hip.

Here is this danger in the dislocations of the Hip, that either the bone cannot be put into the place againe, at least unlesse with very much trouble, or else being put in, that it may presently fall out againe. For if the tendons of the muscles, the ligaments, and other nervous parts of the member be hard and strong, they by reason of their contumacy and stiffnese will hardly suffer the bone to return to its place. If that they be soft, loose, effeminate and weak, they will not contain the restored bone in its place. Neither will it be any better contained, if that short, but yet strong and round ligament, which fastens the head of the Thigh-bone on the inside in the Socket or Cavity of the huckle bone, bee broken or relaxed. Now it may be broken by some violent stroke or accident, it may be relaxed by the congestion and long stay of some excrementitious, tough, and viscous humour lying about the joint, through which means it waxeth loth. But if it be broken, how often soever the bone be restored, it will presently fall out againe. If it be relaxed, there is onely this hope to containe the restored bone, that is, to confume and draw away the heaped up humidity by application of medicines and Cauteries of both kinds, for which purpose those are more effectuall which doe actually burne, for that they dry and strengthen more powerfully. Leaneness of the body, and the want ofSaportasizes, that is, of broad tendont and externall ligaments, wherof many encumbrace the knee, encreaseth the difficulty of containing it in the place. But the parts adjoyning to the dislocated & not set bone fall away by little & little, and confume with an Airphasia or want of nourishment; both because the part it self is forced to be out of the accustomed actions and functions, as also for that the veins, arteries, and nerves being more strained and put out of their places, hinder the spirits and nourishment from flowing fo freely as they ought, to the part: whence it comes to passe, that the part it self made more weak, the native heat being debilitated through idlenesse, it can neither attract the alimentary juice, neither can it digest & assimilate that little thereof which flows and falleth thereto. Verily the Thigh-bone, as long as it is forth of the cavity, growes no more, after the manner as the other bones of the body doe, and therefore in some space of time you may perceive it to be shorter than the found bone. Notwithstanding the bones of the legge and foote are not hindered of their growth, for that they are not out of their proper places. Now for that the whole leg appears more slender, you must think that happens only by the extenuation & leanness of the proper muscles thereof. The same thing happens to the whole hand, in the largest exception, when as the shoulder is out of joint, unlese that the calamity and lofe hereof is the leffe. For the shouder being forth of joint you may do something with your hand, whereby it will come to passe that no small portion of nourishment may flow downe into these parts. But the Thigh-bone being dislocatet, especially inwards in a child unborne, or an infant, much leffe alimentary nourishment flows to that part, because it can much leffe use the foore and legge by reason of the dislocation of the Hip, than it can do the hand by a laxation of the shoulder. But now wee must thus understand that which is said by Hipperides. That dislocated bones and not restored doe decrease or are hindered from their just growth, to bee only in those who have not yet attained to their full and naturally appointed growth.
growth in every dimension. For in men of full growth, the bones which are not restored, become more slender, but yet no shorter, as appears by that which he hath delivered of the shoulder.


dislocations, or Luxations.

CHAP. XLI.

Of the signes of the Hipp, dislocated outwardly or inwardly.

He thigh-bone or Hipp when it is dislocated outwardly, and not restored, after some time the pain is allswaged, and flesh grows about it, the head of the bone wears it selfe a new cavity in the adjoining Hipp, whereinto it betakes it selfe, so that at the length the patients may go without a staffe, neither so deformed a leannesse will waste their legge. But if the luxation happen inward, a greater leannesse will befall them, by reason that the vessels naturally run more inwardly, as Galen observes in the dislocation of the Pterodactylus to the inside, therefore it comes to passe that they are more grievously oppressed: besides the thigh-bone cannot wagge or once stirre against the shynge-bone: wherefore if the bone thus dislocated bee not restored to its joynct againe, then they must cast their legge about as they walke, just as wee fee oxen doe. Wherefore the found legge whilst they goe, takes much leffe space than the lame, because this whilst it stirreth or moveth, must necessarily fetch a compasse about, but that afterwards its motion in a right line. Besides whilst the patients stand upon their lame legge to put forwards the found, they are forced to stand crooked, whereupon they are forced to lay themselves with a staffe that they fall not.

Furthermore those who have this bone dislocated either backwards or outwards, so that it cannot be restored, have part it selfe growe flees and hard, which is the caufe why the ham may bee bended without great paine, and they may stand, and goe upon the tops of their toes; besides also, when they desire ro goe faster, they are forced to stoopen, and strengthen themselves by laying their hand on their lame thigh at every step, both for that their lame legge is the shorter, as also because the whole weight of the body should not lye wholly or perpendicularly upon the joynct or head of the thigh-bone. Yet in continuance of time, when they are used to it, they may goe without any staffe in their hands. Yet in the interim, the found legge becomes more deformed in the compasse & figure, because whilst it succours the opposite and lame legge by the syne standing on the ground, it beares the weight of the whole body, in performance whereof the ham must necessarily now and then bend. But on the contrary, when as the head of the thigh being dislocated inwardly is not put into the joynct, if the patient be arrived at his full growth, after that the head of the bone hath made it selfe a cavity in the neighbouring bone wherein it may rest, he may bee able to walke without a staffe, because the dislocated legge cannot easily be bended towards the groine or ham, and he will sooner rest upon his heele than upon his toes. This kinde of dislocation if it bee inveterate, can never be restored. And these things happen, when as the thigh-bone is dislocated inwardly, or when the intemnal ligament which fastens the disarticulation shall be broken or relaxed. But the contrary shall plainly appear if the dislocation shall happen to bee outward, for then the lame legge becomes the shorter, because the head of the thigh flyes into a place higher than its cavity, and the muscles of that part are contracted towards their original, and convulsively draw the bone upwards together with them. The whole legge, together with the knee and foot looketh inward, they cannot goe upon their heels, but upon the setting on of the toes. The legge may bee bended, which it cannot bee in a dislocation of the thigh inwards, as Paulus thewe. Therefore wee must diligently observe that sentence of Hippocrates which is read with a negative, in these words, Sed nonque desconsilere quemadmodum sanum crum pellunt, that they ought to bee read with an affirmative after this manner, Sed consilere &c. qui in &c. si quid. And now the lame legge will better sustaine the weight of the body in an external, than in an internal dislocation; for then the head of the thigh is more perpend.
Concerning Dislocations, or Luxations.

Chap. XLII.

Of the thigh-bone dislocated forwards.

It seldom happeneth that the thigh is dislocated forwards; yet when it shall happen, it is known by these signs. The head of the thigh lyeth towards the shire; whence the groines swell up, and the buttocke on the contrary is wrinkled and extenuated by reason of the contraction of the muscles; the patient cannot extend his leg without paine, no verily, not so much as bend it towards the groine, for that the fore muscle which ariseth from the hauench bone, is so pressed by the head of the thigh, that it cannot be distended; neither can the ham be bended without very much paine. But the lame legge is equal at the heel with the other leg, yet the patient cannot stand upon the fetering on of the toes; therefore when he is forced to goe, hee toucheth the ground with his heel only, yea, verily the sole of his foot is leffe inclined to the fore side, neither doth it seldom happen, that the urine, by this accident, is suppreft; because the head of the thigh oppresseth the greater nerves from whence those arise which are carrie to the bladder, which through the occasion of this compreffion is pained and inflamed by confequent: now when inflammation shall feaze upon the Sphincter muscle, the urine can scarcely flow out, for that it is hindered by the swelling.

Chap. XLIII.

Of the thigh-bone dislocated backwards.

Eldome also is the thigh bone dislocated backwards, because the hind part of the cavity of the huckle-bone is deeper and more depressed than the fore, whence it is that the dislocation of the thigh to the inner part is more frequent than the reft. The patient can neither extend nor bend his legge by reason of the much compression and tenion of the muscles which encompass the head of the thigh by this kind of luxation. But the pain is increased when he would bend his ham, for that the muscles are the more strongly extended. The lame leg is shorter than the found: when the Buttocks are pressured, the head of the thigh is percieued hid amongst the muscles of that part, but the opposite groine is laxe, soft, and depreft with a manifet cavity. The heele touches not the ground, for that the head of the thigh is plucked backe againe by the muscles of the buttocks amongst which it lyeth hid, but principally by that which is the larger, and which is faied to make as it were the pillow or cushion of the buttocks; for this is much more preffed in this kinde of dislocation than the reft: whence it is, that the patient cannot bend his knee, because the extension of the nervous production or large tendon which covers the knee is so great. But if the patient will stand upon the foot of his luxated leage without a staffe, he shall fall down backwards, for that the body is inclined to that part, the head of the thigh being not directly underneath for the propping or bearing up of the body, wherefore he is forced to sustaine himself upon a crutch on his lame side. Having premised these things of the differences, signes, symptomes and prognosticks, it now remaineth, that we briefly descripte...
the different ways of restoring them, according to the difference of the parts whether it is fallen. First, you must place the patient upon a bench or table, groveling, or with his face upwards, or upon one side, laying some soft quilt or coverlid under him, that he may lye the easier. Now you must place him so, that the part unto which the bone is flown, may be the higher, but from whence it is fled, the lower. For if the thigh-bone be dislocated outwards or backwards, then must the patient be laid groveling; if inwardly, upon his back; if forwards, then upon his side. Then must extension and impulsion be made towards the cavity, that so it may be forced thereinto: but if the dislocation be fresh, & in a soft body, as a woman, child, and such like, whose joints are more lax, it shall not bee any waies needfull to make great extension with strong ligatures for the restoring it, the Surgeons hand shall suffice, or a Lifter to well cast about it. In the interim the bone shall bee kept fast with compresses applied about the joint: then the Surgeon shall extend the thigh, taking hold thereof above the knee, in a straight line, and so see it directly against the cavity, and then presently thrust it thereinto. For thus shall he restore it, if so bee that in thrusting it, hee lift up the head thereof somewhat higher, left the lips of the cavity force it backe, and hinder it from entering. Now because unless there bee just extension there can be no restitution hoped for, it is farre better in that part, that is, to extend it somewhat more than is necessarie, yet so, that you doe not endanger the breaking of any mufcles, tendon or other nervous body. For, as Hippocrates writes, when as the mufcles are strong and large, you may safely extend them, if so be that you displac nothing by the force of the extension. If your hand will not suffice to make just extension, you must use the helpe of an Engine, such as is our Pully, fastened to two poles, so much of the rope being let forth, and drawn up again, as shall suffice for the business in hand; in the performance whereof, it is fit that the patients friends abstain themselves from this sad spectacle, and that the Surgeon bee resolute, and not deterred from his business by no lamentation, neither of the patient nor his friends. But for that we write these things chiefly for the benefit of young practitioners, it seemeth meet, that having delivered these things in general, of restoring the thigh-bone, that we run over these generalities in each particular, beginning with that dislocation which is made inwardly.

CHAP. XLIV.

Of restoring the thigh-bone dislocated inwards.

I t is fit to place the patient after the foresaid manner, upon a table or bench, in the midst whereof shall stand fastened a woodden pin of a foots length, and as thick as the handle of a spade wether to be, but it must be wrapped about with some soft cloth, left the hardneffe hurt the buttocks, betwixt which it must stand, as we read that Hippocrates did in the extension of a broken leg. The woodden pin hath this use, to hold the body that it may not follow him that draweth or extendeth it, & that the extension being made as much as is requisite, it may go between the perineum & the head of the dislocated thigh. For thus there is no great need of counter-extension towards the upper parts; and besides it helpeth to force back the bone into its cavity, the help of the Surgeon concurring, who twining from time to time to this, & otherwhiles to that side, doth direct the whole work. But when the extension hath need of counter-extension, then it is needfull you have such ligatures at hand, as we have mentioned in the restoring of a dislocated shoulder, to be drawn above the shoulder. One of these shall be fastened above the joint of the hip, & extended by a strong man; another shall be cast above the knee by another with the like force. But if you cannot have a wooden pin, another strong & like ligature shall be put upon the joint directly at the hip, & held still by the hands of a strong man, yet so that it may not touch the head of the thigh by pressing it, for so it would hinder the restoring thereof. This manner of extension is common to foure kinds of luxation of the thigh-bone. But the manner of forcing the bone into its cavity, must be varied in each, according to the different condition of the parts.
Concerning Dislocations, or Luxations.

Whereunto the head inclineth, to wit, it must be forced outwards if it bee fallen inwards, and contrary in the rest, as the kind of the dislocation shall bee. Some too clownish and ignorant knot-kisters fall the lower ligature below the ankle, and thus the joynets of the foot and knee are more extended than that of the hipp or huckle-bone, for that they are nearer to the ligature, & consequently to the active force: but they ought to doe otherwise; therefore in a dislocated shouder, you shall not faff then the ligatures to the hand or wret, but above the elbow. But if the hands shall not be sufficient for this workes, then must you make use of engines. Wherefore then the patient being placed as is fit, and the affected part firmly held, some round thing shall be put into the groine, and the patientsknee, together with his whole leg shall be drawn violently inwards, towards the other leg. And in the meane while, the head of the thigh shall be strongly forced towards the cavity of the huckle-bone, and so at length restored, as the following figure shewes.

A figure which manifesteth the way of restoring the thigh bone dislocated inwards.

When the head of the thigh by just extension is freed from the muscles wherewith it was infolded, and the muscles also extended that they may give way and yeeld themselves more pliant, then must the rope be somewhat slack, and then you must also desist from extending, otherwise the restitution cannot bee performed, for that the stronger extension of the engine will reft the hand of the Surgeon, thrusting and forcing it into the cavity. This precept must be obserd in the restoring of this & other dislocations. You shall know that the thigh is restored by the equality of the legs, by the free & painleffe extension & inflexion of the lame leg. Lastly, by the application of agglutinative medicines (whereof we have formerly spoken) the restored bone shall be confirmed in its place, to which purpose ligation shall be made, the ligature being first cast upon the place whereunto the head of the thigh fell, and thence brought to the opposite or found side by the belly and loynes. In the meane while the cavity of the groine must be filled with somewhat a thicke bolster which may keep the head of the bone in the cavity. Neither must you omit junks stretched down even to the ankles, as we have observed in the fracture of the thigh. Then must both the thighs be bound together, whereby the dislocated member may be unmoveable, and more & more strengthened. Neither must this dressing be looted, until foure or five dayes be passed, unless peradventure the sudden happening of some other more grievous symptome shall persuade otherwise. To conclude, the patient must be kept in his bed for the space of a monteth, that the relaxed muscles, nerves and ligaments may have space to recover their former strength. Otherwise, there is danger left the bone may againe fall out by the too forward and speedy walking upon it. For the site of the thigh it must be placed and kept in a middle figure, yet this middle figure consists in the extension, not in the flexion, as it is demonstrated by Hippocrates, for that such a figure is familiar and accustomable to the legge.

CHAP.
This kind of dislocation is the easiest restored of all those which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawn back into its cavity by the only regress of the extended muscles into storing themselves towards their originals, somewhiles with a noisy or pop, somewhiles without which being done, laying a compress upon the joint, you shall perform all other circumstances as before in an internall dislocation.

CHAP. XLVI.

Of restoring the Thigh dislocated outwardly.

When it is that only extension serves for the restoring the dislocated thigh.

This kind of dislocation is the easiest restored of all these which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawn back into its cavity by the only regress of the extended muscles into storing themselves towards their originals, somewhiles with a noisy or pop, somewhiles without which being done, laying a compress upon the joint, you shall perform all other circumstances as before in an internall dislocation.

CHAP. XLVI.

Of restoring the Thigh dislocated forewards.

When it is that only extension serves for the restoring the dislocated thigh.

This kind of dislocation is the easiest restored of all these which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawn back into its cavity by the only regress of the extended muscles into storing themselves towards their originals, somewhiles with a noisy or pop, somewhiles without which being done, laying a compress upon the joint, you shall perform all other circumstances as before in an internall dislocation.

CHAP. XLVI.

Of restoring the Thigh dislocated forewards.

When it is that only extension serves for the restoring the dislocated thigh.

This kind of dislocation is the easiest restored of all these which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawn back into its cavity by the only regress of the extended muscles into storing themselves towards their originals, somewhiles with a noisy or pop, somewhiles without which being done, laying a compress upon the joint, you shall perform all other circumstances as before in an internall dislocation.

CHAP. XLVI.

Of restoring the Thigh dislocated forewards.

When it is that only extension serves for the restoring the dislocated thigh.

This kind of dislocation is the easiest restored of all these which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawn back into its cavity by the only regress of the extended muscles into storing themselves towards their originals, somewhiles with a noisy or pop, somewhiles without which being done, laying a compress upon the joint, you shall perform all other circumstances as before in an internall dislocation.
Concerning Dislocations, or Luxations.

**CHAP. XLVII.**

Of restoring the thigh dislocated backwards.

He patient shall be placed groveling upon a table or bench, and the member extended, as in the rest, one ligature stretched from the groine, another from the knee; then the Surgeon shall endeavour to force back with his hand that which stands up, and also to draw away the knee from the sound legge. The bone thus placed and restored, the cure requires nothing else, than to be bound up and kept long in bed, left that the thigh, if it should be moved, the nerves being yet more loole, might again fall out. For the thigh is in great danger of relapse, for that the cavity of the Huckle-bone is only deprefted, as farre as it goes in, and the burden of the hanging or adjoyning Thigh is heavy.

**CHAP. XLVIII.**

Of the dislocation of the Whirle-bone of the knee.

He Whirle-bone of the knee may fall south into the inner, outer, upper, and lower part, but never to the hinde part, because the bones which it covers do not suffer it. To restore it, the patient must stand with his foote firmly upon some even place, and then the Surgeon must force and reduce it with his hands from the part into which it is preternaturally fledden. When it shall be restored, the cavity of the ham shall be filled up with bolsteres, so that he may not bend his leg, for if it be bended, there is no small danger of the falling back of the whirle-bone. Then a cafe or box shall be put about it, on the side especially whereeto it fell, being made somewhat flat & round resembling the whirle-bone itself, and it shall be bound on with ligatures, and medicines so fast that it may not stirre a jot. After the part shall seeme to have had sufficient rest, it is fit that the patient try and accustome by little and little to bend his knee, untill at length hee shall find that he may easilie and safely move that joint.

**CHAP. XLIX.**

Of the dislocatcd Kne."
Concerning Dislocations, or Luxations.

him who may bend with both his hands & bring to his buttocks the patient's leg put betwixt his owne legges. But if the restitution do not thus succeed, you must take a clev of yearn, and fasten it upon the midst of a staffe, let one put this into the cavity of his ham, upon the place whereas the bone stands out, and so force it forwards; then let another cast a ligature of some three fingers breadth upon his knee, and draw it upwards with his hands, then presently and at once they all shall so bend and crooke the lame legge that the heele thereof may touch his buttocks.

CHAP. L

Of a knee dislocated forwards.

But if the knee bee dislocated forwards (which seldom happens) the patient shall be placed upon a table and a convenient ligature made above, and another close beneath the knee. Then the Surgeon shall so long press downe with both his hands the bone which is out of joint, untill it shall returne to its place againe. To which purpose if the strengthe of the hand will not serve to make just extension each way, you may make use of our engine, as you may perceive by this following figure.

A figure showing the manner of restoring a knee dislocated forwards.

You shall know that the bone is restored by the free and painlesse extension of the legge; then will their bee place for medicines, boulsters and strengthening ligatures. In the meantime the patient shall forbear going, so long as the part shall seeme to require.

CHAP. LI

Of the separation of the greater and lesser Focile:

The Fibula or lesser Focile is fastened and adheres to the Tibia, leg-bone, or greater Focile without any cavity, above at the knee and below at the ankle. But it may bee pluckt or drawne aside three manner of waies, that is, forwards, and to each side: this chance happens when in going we take no sure footing, so that wee slip with our fecte this way and that way as in a slippery place, and so wreft it inwards or outwards; for then the weight of our body lying open
Concerning Dislocations, or Luxations.

Upon it, draws the legge, as it were, intunder, so that the one Focile is diſlocated or separated from the other. The same may happen by a fall from a high place, or some grievous and bruising blow; besides also, their appendices are sometimes separated from them. For the restoring of all these into their proper places, it is fit they be drawne and forced by the hand of the Surgeon into their seats: then shall they be freely bound up, putting compresses to that part unto which the Fibula flew, begining also your ligation at the very luxation, for the forementioned reasons. The patient shall rest forty daies, to wit, as long as shall bee sufficient for the strengthening of the ligaments.

Chap. LII.

Of the Leg-bone or greater Focile diſlocatd and divided from the Paternine bone.

Dislocations and figures.

The cure.

Lo the Leg-bone is sometimes diſlocatd, and divided from the Paternine bone, as well inwardly, as outwardly; which may bee known by the swelling out of the bone to this or that part; if it be onely a subluxation or frame, it may bee easily restored, by gently forcing it into the place againe. After the bone shall be restored, it shall be kept fo by compresses and fit deligation, by crude and contrary binding to the side opposite to that towards which the bone fell, that so it may bee more and more forced into its place. In the mean time you must have a care that you doe not too straitly press the great and large tendor which is at the heele. This kind of diſlocation is restored in forty dayes, unleffe some accident happen which may hinder it.

Chap. LIII.

Of the Dislocation of the Heel.

Dislocations and differences.

The cure.

HITHEREVER leaping from a high place have fallen very heauie upon their heele, have their heele diſlocatd and divided from the Paternine bone. This diſlocation happens more frequently inwardly than outwardly, because the prominency of the leffer Focile embraces the Paternine bone; whence it is, that there it is more straitly and firmly knit. It is restored by extention and forcing it in, which will bee no very difficult matter, unless some great dislocation or inflammation hinder it. For the binding up, it must bee straitly in the part affected, for the blood may bee pressed from thence into the neighbouring parts; yet using such a moderation, that it may not bee painefull, nor press more straitly than is fit, the nerves and groffe tendor which runnes to the heele. This diſlocation is not confirmed before the fortieth day, though nothing happen which may hinder it. Yet usually it happeneth that many Symptomes enuie by the vehemenency of the contusion. Wherefore it will not bee amisse to handle them in a particular chapter.

Chap. LIV.

Of the Symptomes which follow upon the contusion of the Heel.

Why blood-letting necessary. In the fracture of a heele.

If it happeneth by the vehemenency of this contusion, that the veins and arteries do as it were vomit up blood both through the secret passages of their coares, as also by their ends or orifices, whence an Ecchymosis or blackneffe over all the heel, paine, swelling, and other the like enuie, which implore remedies, & the Surgeons helpe, to wit, convenient diet, and drawing of blood by opening a vein (of which though Hispocrates makes no mention, yet it is here requisite by reason of the feaver and inflammation) and if need require purgation, princi-
principally such as may divert the matter by causing vomit, and lastly, the application of local medicines, chiefly such as may soften and rarify the skin under the heel, otherwise usually hard and thick (such as are fomentations of warme water & oile) so that divers times wee are forced to sacrifice it with a lancet, slitting the quicke flesh. For so at length the blood poured forth into the part, and there heaped up, is more easily attenuatcd, and at length resolved. But these things must all bee performed before the inflammation cease upon the part, otherwise there will be danger of a condition. For the blood, when it falls out of the veffels, readily putrefies, by reason the density of this part hinders it from ventilation and dispersing to the adjacent parts. Herefore may be added that the large and great Tendon which covers the heel, is endowed with exquisite fenfe, and also the part itselfe is on every side spread over with many nerves. Besides also there is further danger of inflammation by lying upon the backe and helele, as we before admonished you in the Fracture of a leg. Therefore I would have the Surgeon to bee here most attentive and diligent to performe these things which we have mentioned, left by inflammation a Gangrene and mortification (for here the fensitive flesh presently falls upon the bone) happen together with a continued and sharp feaver, with trembling, hicketing and raving. For the corruption of this part first by contagion assails the next, and thence a fever assails the heart by the arteries presed and growing hot by the purrid heat, & by the nerves and that great and notable tendon made by the concourie of the three muscles of the calf of the legge, the muscles, braine and stomache are evilly affected and drawn into content, and so cause convulsion, raving and a deadly hicketing.

### Chap. L.V.

**Of the diislocated Paternone or Ankle-bone.**

The Aitragalus or Paternone bone may bee dislocatcd and fall out of its place to every side. Wherefore when it falls out towards the inner part, the syle of the foot is turned outwards, when it flies out to the contrary, the sign is also contrary: if it be dislocatcd to the forefide, on the hinde syle the broad Tendon comming under the heel is hardend and diftended, but if it be luxated backwards, the whole heel is as it were hid in the foot: neither doth this kinde of dislocation happen without much violence. It is restored by extending it with the hands, and forcing it into the contrary part to that from whence it fell. Being restored it is kept to by application of medicines and fit ligation. The patient must keepe his bed long in this case, lest that bone which sustenies and bears up the whole body, may againe fink under the burden, and breake out, the sinewes being not well knit and strengthened.

### Chap. LVI.

**Of the dislocation of the Instep and Backe of the foot.**

The bones also of the Instep and backe of the foot may be luxated, and that either upwards or downwards, or to one syle, though seldom one sidewise, for the reason formerly render'd, speaking of the dislocation of the like bones of the hand. If that they stand upwards, then must the patient read hard upon some plaine or even place, and then the Surgeon by preffing them with his hand (shall force them into their places; on the contrary, if they stand out of the syle of the foote, then must you preffe them thence upwards, and restore each bone to its place. They may be restored after the same manner if they bee flowne out to either syle. But you must note that although the ligatures confist but of one head
Concerning Dislocations, or Luxations.

Of the dislocation of the Toes.

The different cases.

Cure.

Ow the Toes may bee foure waies dislocated, even as the fingers of the hand, and they may be restored jut after the same manner, that is, extend them directly forth, and then force each joint into its place, and lastly bind them up as is fitting. The restitution of all of them is easie, for that they cannot farther tranfgres their bounds. To conclude, the bones of the feet are dislocated and restored by the same means as those of the hands, but that when as any thing is dislocated in the foote, the patient must keepe his bed, but when any thing is amisse in the band, he must carry it in a ferue. The patient must reft twenty dayes, that is, until he can firmly stand upon his feet.

Cure.

Cure, or Atrophia of any member.

What may be used in fomenting.

Now the leannefle which is occafion'd by too ftrait ligation receives cure by the blackening of the ligatures wherewith the member was bound. That which proceeds from idlenefs is helped by moderate exercife, by extending, bending, lifting up and deftreffing the member, if fo bee that he can away with exercife. Otherwise he shall use frictions and fomentations with warme water. The frictions must be moderate in hardeneffe and gentleneffe, in length and thorneneffe. The fame moderatiffen shall be observed in the warmenes of the water, and in the time of fomenting. For too long fomenting resolves the blood that is drawn. But that which is too little or short apace draws little or nothing at all: after the fomentation, hot and emplafifie medicines made of pitch, turpentine, euphorbium, pellitory of Spaine, sulphur, and the like, shall bee applied. They shall bee renewed every day more often or seldom, as the thing is felt, shall feeme to require.

These
Concerning Dislocations, or Luxations.

Thee medicines are termed Dropaces, whose forme is thus. *R. paein nigra, ammodendron laevius, laevius, gummi elmi in aqua vita dissolutum: an. 3i. olei laurini: 3i. pulvere piperae, Zizythis, granorum paradisi, baccarum lauris et gummi, an. 3i. sua emplastrum secundum artes, extenuatus super alatum. It is also good to binde about the opposite found part with a ligature, yet without pain, as if the right arm should decay for want of nourishment, the left shall bee bound, beginning your ligation at the hand, and continuing it to the Arme-pit. If this mischief shall freeze upon the right leg, then the left shall be swathed up from the sole of the foote to the groine. For thus a great portion of the blood is forced back into the vena comitia, or hollow veine, and from this being distended and over full, into the part affected and gaping with the veine is almost empty; besides also it is convenient to keep the found part in rest, that so it may draw the leffe nourishment, and by that meanes there will bee more flore to refresh the weake part.

Some with allo to bind up the decaying member with moderate ligation, for thus, say they, the blood is drawn more than warme, and hold it there untill it grow red and swell; for thus blood is drawn into the veins, as they find, which use to draw blood of the saphe, ma and falsvella. Now if, when as these things and the like bee done, the lame part grow hot, red and swollen; then know that health is to be hoped for; but if the contrary happen, the case is desperate, wherefore you need attempt nothing further.

Furthermore, there is sometimes hardneffe left in the joints, after fractures and dislocations are restored. It is fit to soften this, by resolving the contained humor by fomentations, liniments, cataplafmes, emplasters made of the roots of Marsh-mallowes, briony, lilies, line feed, fenugreek feed, and the like, and also of gums dissolved in strong vineger, as Ammoniacum, bdellium, opoponax, labdanum, sagapenum, fyrax liquida, and Adeps anserinus, gallinaceus, humainae, oleum lilium, and the like. Also you must wil that the patient to move the parte ever now and then, every day, yet lo, that it be not painfull to him, that so the pent up humour may grow hot, bee atteneded, and at length discurst, and lastly the part it selfe restored as farre as art can perform it, for oit times it cannot be helped any thing at all. For if the member be weake and lame by reason that the fracture happened near the joint, for the residue of his life the motion thereof uth the union be painful and difficult; and oft times none at all, especialy if the callus which grows there be somewhat thick and great; and lastly, if the joint it selfe shall bee contrufed and broken by the stroke, as it oft times happens in wounds made by Gun-shot.

The End of the sixteenth booke.
OF DIVERS OTHER PRETERNATURAL AF-  
FECTS, WHOSE CURE IS  
COMMONLY PERFORMED  
BY SURGERY.

THE SEVENTEENTH BOOKE.

CHAP. I.

OF AN ALOPECIA, OR THE FALLING AWAY OF THE HAIR OF THE HEAD.

An Alopecia is the falling away of the hair of the head, and sometimes also of the eye-brows, chin and other parts; the French commonly call it the Pelade. Physicians term it the Alopecia, for that old Foxes subject, by reason of their age, to have the scab, are troubled oftentimes with this disease. This affection is caused either through defect of nourishment fit to nourish the hair, as in old age through want of the radical humidity, or by the corruption of the alimentary matter of the same, as after long fevers, in the Lues venerea leprosity, the corruption of the whole body and all the humours, whence followeth a corruption of the vapours and fuliginous excrements; or else by the vitious constitution of the pores in the skin in rarity, and contraction or density, as by the too much use of hot ointments made for colouring the hair, or such as are used to take off hair; therefore called Depilatoria, or by the burning of the skin, or лоffe thereof, having a scarre in heath thereof, by reason of whose density the hair cannot spring out, as by too much laxity the fuliginous matter of the hair stays not, but presently vaniseth away.

The Alopecia which comes by old age, a consumption, burne, baldness, leprosity and a scald head, is incurable: that which admits of cure, the cause being taken away, is helped. Wherefore, if it proceed from the corruption of humours, let a Physician be called, who as he shall think it fit, shall appoint diet, purging and phlebotomie. Then the Surgeon shall have off that hair which is remaining, and shall first use resolving fomentations, apply Leaches and Horns to digest the vicious humour which is under the skin, then shall he wash the head to take away the filth with a lye, where-in the roots of Orris and Aloes have been boyled. Lastly, he shall use both attrative fomentations and medicines for to draw forth the humour which is become laudable in the whole body by the benefit of diet fitly appointed, But if the Alopecia shall happen through defect of nourishment, the part shall be rubbed io long with...
with a coarse linen cloth, or a figge leaf, or onions, untill it waxe red; besides also the skin shall bee pricked in many places with a needle, and then ointments applied made of Labdanum, pigeons dung, flavifager, oile of bayes, turpentine and waxe, to draw the bloud and matter of the haire. If the haire be loft by the Lue's sence, the patient shal be annotated with quicksilver to sufficient fivilation. To conclude, as the caufes of this difeafe shal be, so must the remeies be fittted which are used.

**CHAP. II.**

Of the Tinea, or Scalle Head.

THe Tineat (let the te temetis in Latine, whilffe a fitter word may be found) or a scall head, is a difeafe poifonning the mufculous skin of the head or the hairy fcape, and eating thereinto like a moth. There are three dif- rences thereof: the firſt is called by Galen fcaly or branlike, for that whileſt it is fcratched it cafts many branlike scales: some Practitioners term it a dry fcall, because of the great aduſtion of the humour caufing it. Another is called feofa, a fig-like fcall, because when it is dispoyled of the coift or feab which is yellow, there appear grains of quick and red fleſh, like to the inner seeds or grains of figges, and cauting out a bloody matter. Galen names the third Achor, and it is alſo vulgarly termed the corrosive or ulcerous fcall, for that the many ulcers wherewith it abounds are open with many small holes flowing with liquid liquer like the washing of fleſh, flinking, corrupt and carrion-like, somwhat livid, somwhates yelloweſh. These holes, if they be somewhat larger, make another diſcouragement whicke which is called Cerion or Favofs (that is, like a hony cooke) because as Galen thinks, the matter which floweth from thefe, refemblenthony in colour and confiftence. They all proceed of an humour which is more or leſle vicious, for a leſſe corrupt humour cauſeth a fcaly, a more corrupt, the fig-like, but the moſt corrupt produceth the ulcerous. If it ſhall happen to an infant by reaſon of the fault and contagion of the nurſe, or ſeleſſy after it is borne, it scarce admits of cure, neither muſt we attempt that before the child come to that age, that he may be able to endure the cure & medicines. But you may in the meanwhile apply the leaves of Colworts or beets befmeared with treſh butter, or other gentle medicine having a faculty to raﬄie and open the paffeſge for the fint up matter. Thofe who are of ſufficient age to away with medicines, may bleed, purge, bathe, according to art by the advice of a Phicifian. For lo-cal medicines in a fcaly ſcall, fortifying and diffuﬄing ſomentations ſhall be appointed, made of the roots of marth-Mallowes, Lillies, Docks, Sorrel boy led in ley with a little vineger added thereto. The head ſhall be twıce in a day ſomented with ſuch an ſecution, and on the sixth day the haire being flaven off, it ſhall be ſêtreſifi, and then leaches and homes put to it so ſcarified. Then it ſhall be fortheſhith with annoyed with oyle of flavifager mixed with blacke fope, both to draw & repreſſe the malignity of the humour inpact in the part. You may alfo use the following medicine even to the perfect cure of the difeafe, as that which is much commended in this kind of difeafe by Pigo, Gordenium, and Guido; it is thus made, R. elſeb alba & nigri, atrament, auripigmenta, lithargyi aur, calcis vivus, vitri ol, alum, galla, sube cen- ner, facie tincti, un 5 B. argentii viviti extinerti, 5ii. erucinis aris 5ii. fiat palvis qui incorpoeretur cum succo boraginis, fbbibu, fimaris, oxylapathi, aceti, ame, alii anti- quis lib, bultantet ad consumptum succorum, in fine diſeantio cinereos ponatetur, addendo piscia liquida 3 B. et, aquam flaccific, fiet augmentum: Theſe authors teſtifie that this will heale any kind of ſcall. Certamy none can diſaffow of it who well confer- dereath the engrements and compoſure thereof.

A cruſty alio or fig-like ſcall ſhall be so long ſomented with the preſcrib'd ſo- mentation, until the crufts or feabs fall off, yet there is nothing to good and efficu- all as Creffes beaten or tryed with hogs fuc. For it will make it fall off in the space of foure and twenty hours, besides, if it be continued it will heale them thoroughly, as I have knowne by experience, and reaſon alio stands there with; for according to Galen,
The cure of an ulcrous scall.

A platter to
pluck away the
haire at once.

For the third kind of scall which is termed a Corroli or ulcerous, the first indication is to cleanse the ulcers with this following ointment. Let an unguintum cum mercurio duplicatur, egyptiaco, an. iii. vitriol. albi in pulverem redactis. Sinarceptamentum simul, ut unguentum ad usum, allo you may use the formerly described ointment. But if any paine or other accident fall out, you must withstand it by the assistance and direction of some good Physician; very these following medicines against all kinds of Scalls have been found out by reason, and approved by use. R. Camphir. Sii. alun. rub. oivitioi. aris. sulphurii. sulig. form. an. vi. asei amyg. dulcium. et unguenta. or. an. iii. supertamentum simul in mortario. ut unguentum. Some take the dung which lyeth rotting in a sleepy fold; they use that which is liquid, & rub it upon the ulcerated places, & lay a double cloth dipped in that liquor upon it. But if the patient cannot be cured with all these medicines, & that you find his body in some parts thereof troubled in like sort with crusty ulcers, I would wish that his head might be anointed with an ointment made of Axuniga, argentum vivum, & a little Sulphur: & then fix com empistrium Vigum cum mercurio into the fashion of a cap; also some platers of the same may be applied to the shoulders, thighs and legs, & so let him be kept in a warme chamber, and all things done as if he had the Lues venerea. This kind of cure was first (that I know of) attempted by Simon Blanch the Kings Surgeon, upon a certaine young man, when as he in vaine had diligently tried all other usuall medicines. A called head oft-times appeareth very loathsome to the eye, casting forth virulent and stinking vanity; at the first it is hardly cured, but being old, far more difficultly. For divers times it breaketh out after, when you think it kild, by reason of the impregnation of the maligne putrefaction remaining in the part, which wholly corrupts the temper thereof. Moreover, oft-times being healed, it hath left an Alia. pecia behind it, a great shame to the Surgeons. Which is the reason, that most of them judge it best to leave the cure thereof to Empcricks and women.

CHAP. III.
Of the Vertigo, or Giddinesse.

HE Vertigo is a sudden darkening of the eyes and sight by a vaporous & hot spirit which ascended to the head by the sleepy arteries, and fills the braine, disturbing the humors and spirits which are conveyed there, & toying them unequally, as if one ran round, or had drunk too much wine. This hot spirit oft-times rizeth from the heart upwards by the internall sleepy arteries to the Retinehi-

A consummation shall must be cured as we cure the Leg.

The signes.

V in the Figure.
Of divers preternatural Affects,

HE Megrim is properly a disease affecting the one side of the head, right, or left. It sometimes pains no higher than the temporall muscles, otherwhyles it reacheth to the toppe of the crown. The cause of such pain proceedeth either from the veins and external arteries, or from the meninges, or from the very substance of the braine, or from the pericranium, or the hairy scalp covering the pericranium, or laby, from purrid vapours ariseth to the head from the ventricle, womb, or other inferior member. Yet an external cause may bring this affect, to wit, the too hot or cold constitution of the encompassing ayre, drunkennesse, glutony, the use of hot and vaporous meares, some noyse, vapour or smoke, as of Antimony, quick-silver, or the like, drawne up by the nose, which is the reason that Goldsmiths, and such as gild metals are commonly troubled with this disease. But whencesoever the cause of the evil proceedeth, it is either a simple distemper, or with matter: with matter, I say, which again is either simple or compound. Now, this affect is either alone, or accompanied with other affects, as inflammation and tension. The heaviness of head argues plenty of humour, pricking, beating and tension fiewes that there is plenty of vapours mixed with the humour, and flux up in the nervous, arterious, or membranous body of the head. If the pain proceed from the inflamed meninges, a fever followeth thereon, especially, if the humour causing paine doe putrefic. If the paine be superciliary, it is seated in the pericranium. It profound, deep, and piercing to the bottom of the eyes, it is an argument that the meninges are affected, and a feaver ensues, if there be inflammation, and the matter putrefic; and then oftentimes the tormenting paine is so great and grievous, that the patient is afraid to have his head touched, if it be but with your finger, neither can hee away with any noyse, or small murmuring, nor light, nor fume however sweet, no nor the fume of Vine. The paine is sometimes continual, otherwhyles by fits. If the cause of the pain proceed from hot, thin & vaporous blood, which will yield to no medicines, a very necessary, profitable & speedy remedy may be had by opening an artery in the temples, whether the disease proceed from the internall or externall vessels. For, hence always ensueth an evacuation of the conjunct matter, blood and spirits. I have experimented this in many, but especially in the Prince de la Roche, sire of his Physicians, when he was troubled with this grievous Megrim, were Chaplains, the Kings, and Castellan, the QUEENS chieflie Physicians, and Leure. Duret, who notwithstanding could help him nothing by blood letting, cupping, baths, frictions, diet or any other kind of remedy either taken inwardly or applied outwardly. I being called, said, that there was only hope one way to recover his health, which was to open the artery of the temple in the same side that the paine was; for I thought it probable that the cause of his pain was not contained in the veins, but in the arteries. In which case by the testimony of the ancients, there was nothing better than the open-
opening or bleeding of an artery, whereof I had made trial upon my selfe to my great good. When as the Phylistians had approved of this my advice, I presently betake my selfe to the work, and choose out the artery in the pained temple, which was both the more fwine and beat more vehemently than the rest. I open this, as wee use to doe in the bleeding of a vaine, with one incision, and take more than two fawcers of blood flying out with great violence, and leaping; the paine presently ceas'd, neither did it ever molest him againe. Yet this opening of an Artery is suspected by many, for that it is troublesome to stay the guilting forth blood, and cicatrize the place, by reason of the densitie, hardnesse, and continual pullation of the artery, and lastly, for that when it is cicatrized there may be danger of an Anaemia. Wherefore they thinke it better first to divide the skin, then to separate the artery from all the adjacent partcles, and then to binde it in two places, and lastly divide it, as we have formerly told you must be done in Varies. But this is the opinion of men who fear all things where there is no caufe; for I have learnt by frequent experience that the apertion of an artery, which is performed with a Lancet, as we doe in opening a vaine, is not at all dangerous; and the consolitation or healing is somewhat sooner than in a vaine, but yet will bee done at length, but that no flux of blood will happen, if so bee that the ligatures be fitte performed, and remaine so for sowe dayes with fitte plegets.

Chap. V.

Of certaine affects of the eyes, and first of staying up the upper eye-lidde when it is too large.

The diseases which befall the eyes, some poiffes the whole substance thereof, as the Ophthalmia, a Phlegmon thereof; others are proper and peculiar to some parts thereof, as that which is termed Gnastraena to the opticke nerve. Wherefore Galen made a threefold difference of the diseases of the eyes, as that some happened to the eye by hurting or offending the chief organ thereof, that is, the crytalline humour; others by hindering the animal faculty, the chief causer of sight, from entering into them; and lastly, other some by offending the parts subjacent to the prime organ or instrument. Now of all these diseases, the eye hath some of them common with the other parts of the body, such as are an Ulcer, wound, Phlegmon, contusion and the like; other some are peculiar and proper to the eye, such as are the Cataracta, Glaucoma, and divers others of this kind. Some have their upper eye-lid fall down, by reason that the upper skin thereof is relaxed more than is sufficient to cover the eye, the gristle in the meantime not relaxing it self together therewith. Hence proceeds a double trouble; the first, for that the eye cannot be easily opened; the other, because the hairies of the relaxed upper eye-lid run in towards the eye, and become troublesome thereto by pricking it. The cause of such relaxation is either a particular blush of that part, which is frequent in old people, or the defluxion or falling downe of a watrife humour, and that not acride or biting, which appeares by this, that those who are thus affected have a ranke of haires growing under the natural ranke, by reason of the aboundance of heaped up humour, as it is most probable. For thus a wet and marish ground hath the greatest plenty of grass. Now if this same humour were acride, it would cause an itching, and consequently become troublesome to the patient, and it would also fret and infinuer and destroy the roots of the other haires, so faire it is from yeilding matter for the preternatural generation of new.

It is fit, before you doe any thing for the cure, that you mark with inke the portion thereof which is superfuous, and therefore to be cut away, lest if you should cut off more than is requisite, the eye-lid should remaine turned up, and so cause another kind of affect, which the ancients have called Astenopia. Then the eye being covered, take and lift up with your fingers the middle part of the skin of the eye-lid, not taking hold of the gristle beneath it, and then cut it athwart, taking away just so much.
Of divers preternatural Affects.

Chap. V I.

Chap. VII.

Of Lagophthalmus, or the short eye.

Luch as have their eie-lids too short, sleep with their eyes open, for that they cannot be covered by the too short skin of the eye-lids: the Greekes term this affect, Lagophthalmus. The cause is either internall or externall: internall, as by a Carbuncle, Impostum, or Ulcer: externall, as by a wound made by a sword, burn, fall, & the like. If this mishap proceed by reason of a cicatrization, it is cureable, if so that the short eie-lid be of an indifferent thicknesse. But if it have bin from the first conformation, or by some other meanes, whereby much of the substance is lost, as that which happens by burning and a carbuncle, then it is uncurable. For the cure, you shall use relaxing and emollient fomentations, then the skinne shall be divided above the whole tear, in figure of an halfe moon, with the homes looking downwards. Then the edges of the incision shall be opened, and lint put into the middle therc, that so it may hinder the lips from joyning together againe. Then shall you apply a platter upon the lint, and fo bind up the part with a fitting ligation that may somewhat presse upon the whole eye, lest it should lift it selfe somewhat upwards againe, and so returne into its ancient, but not natural figure. But in cutting the skirne, you must take care that your incision harme not the gristle: for, if it be cut, the eie-lid falls downe, neither can it be afterwards lifted up.

But now for the lower eye-lid: it is subject to sundry disease, amongst which there is one which answereth in proportion to that, which we late mentioned, which is, when as it is lifted upwards little or nothing, but hangs and gapes, and cannot bee joyned with the upper, and therefore it doth not cover the eye, which affect is familiar to old people; it is called Ektopias, and it may be helped by the means formerly delivered.
perform the cure by opening them, that so the contained matter may flow, or be
preffed forth. If the pimple or swelling be small, then thrust it through with a need¬
le and thread, and leave the thread therein of such length that you may fallen the
tend thereof with a little of the emplater called Gratia Dei like glue to the fore¬
head, if it be on the upper eye-lid, or to the checks, if on the lower. You must draw
through a fresh every second day, as is usually done in chirurgical fets. For
thus at length the swelling will be destroyed and made plaine.

CHAP. VII.
Of the Hydatis or Fatness of the Eye lids.

He Hydatis is a certaine fatty substance like a piece of fat seated and ly¬
ing under the skinne of the upper eye-lid. It is a disease incident to chil¬
dren, who are of a more humid nature: wherefore it is a hot and looffe
tumour making the whole eye-lid, which it poiffefteth, cedematous: so
that, as it deprefsed with a weight, it cannot be lifted up. It hath its name, for that it
hath as it were a bladder distended with a whifhy humour, which kind of fault is
observed by Galen in the liver. Thofe, who are thus affected, have their eyes look¬
red, and flow with tears, neither can they behold the fun, or endure the light. The
cure is performed by cutting off the superfluous substance, not hurting the neigh¬
bring parts, and then preferably put some fat into the place whence it was taken
out (unless the vehemency of paine hinder) that so the place may bee dryed and
strengthened, and the rest of the matter (if any such be) may be consumd, and hind¬
dred from growing againe. Latly, you shall cover the whole eye with the white of
an Egge difolved in rofe-water, or some other remedial.

CHAP. IX.
Of the Eye-lids fattenfled or glewed together.

Oftentimes it commeth to passe that the upper eye-lid is glewed or fatten¬
fed to the under, fo that the eye cannot be opened, or so that the one of
them may ftick or bee fattenfed to the white coat of the eye, or to the
horny. This fault is oftentimes drawn from the firit original, that is,
by the default of the forming faculty in the wombe (for thus many infants are born
with their fingers fattenfed together, with their fundamentes, privities and eares un¬
perforated) the eye in all other refpects being well compos'd. The caufe of this af¬
fett sometimes proceeds from a wound, otherwhiles from a burn, scald or impofoctu¬
mation, as the breaking of the small pox. It is cured by putting in a fift inftrument, &
go opening them, but with fuch moderation, that you touch not the horny coat, for
otherwife it would fall out. Therefore you must put the end or point of your probe
under the eye-lids, and lifting them up (that you hurt not the subfance of the eie)
divide them with a crooked infcription knife.

The infcription made, let the white of an egge beaten with some rofe-water be put
into the eye; let the eye-lids be kept open, yea let the patient himfelf be carefull that
he often turne it upwards, and lift it up with his fingers, not onely that the medicine
may bee applied to the ulcer, but alfo that they may not grow together againe.
In the night-time let a little pledget dipped in water, and that either fimple, or where¬
in fome vitrioll hath bin diffolvd, bee laid thereon. For thus you hall hinder the
eye-lids from joyning together againe. Then on the third day the parts or edges of
the eie-lids shall be touched with waters drying without biting or acrimony, that so
they may be cicatrized. But if the eye-lid adhere to the horny coat at the pupil or, the
apple of the eye, the patient will either bee quite blind, or very ill of sight. For the
fcarce which enues will hinder the shapes of things from enterling to the cryftalline
humour.
humour, and the visive spirits from passing forth to the objects. For prognostickers, you may learn out of Celcius, that this cure is subject to a relapse, so that it may bee thronned neither by diligence nor industry, but that the eye-lid will always adhere and cleave to the eye.

Chapter X.

Of the itching of the Eye-lids.

Any have their eye-lids itch vehemently by reaon of salt phlegme, which often times excoriating and ulcerating the parts themselves, yields a Danish, which joynes together the eye-lids in the night time as if they were glewed together, and makes them watry and bleared. This affect doth torment the patients that it oft times makes them require the Physicians helpe. Wherefore generall medicines being premised, the Ulcers shall be washed with the following Collyrium, R. aqua mollis in balneo maris definita 3ii. sacchari candi, 3i. aloeis lotis & in pollinim redacta 38, flat collyrium. Which if it doe no good, you may use this which followes. R. august. Egyptiae, 3i. distillate in aqua plantaginea quantitate sufficiente. Let the ulcerated eye-lids be touched with a soft linen rag dipped therein, but with care that none thereof fall upon the eye. But when the patient goes to bed, let him cause them to be anointed with the following ointment, very effectuall in this case. R. aqua purpurea et butyri recentis, an. 38, rub. prepar. 38, antimon. in aqua euphrasia preparata. 3ii. camphora gra. iii. miste, et in morta- tio plumbus decantante per tres horas, confumatum indiunguentium, servetur in ptdide plun- bea. Some commend and use certaine waters fit to cleanse, dry, binde, strengthen, and abolutely free the eye-lids from itching and redness, of which this is one.

R. aquae euphratis, sanctorum, chelidon, an. 38, sarcocula, nutrice. 3ii. vitriol, rom. 3i. misc. ceamur simul & bullant unica ebullitione; postea coloutur liquore, & servetur ad usum di- clum. Or els. R. aquae, & auro vulg. bon. an. 3ii. tuss. prepar. aloeis an. 3i. flor. anii. 3ii. camphora. gra. ii. Let them bee boyled according to art, and kept in a glasse to walsh the eye-lids. Or els. R. vitrioli solubi. succedaneum. 3i. let them be put into a cleane barbers baflon and covered, and kept there five or six dayes, and bee trined once a day, and let the eye-lids bee touched with this liquid. Some with that the patients urine be kept all night in a barbers baflon, and fo the patients eye-lids be washed therewith. Verily in this affect we must not fore the use of acrid medicines, for I once saw a woman of fifty years of age, who washed her eye-lids when they itched with the sharpest vinegar the could get, and affirmed that he found better successe of this than of any other medicine. Figg prescribes a water whose efficacy above other medicines in this affect, hee faith, hath bin proved; and that it is to bee efteemed more worth than gold, the description thereof is thus. R. aquae vitrioli solubi. ad usum di- clum. Hic drinkes with the same complection, and doth in a short time dry the eye-lids. Let the liquor be kept in a glasse well stoped for the foresaid use.

Chapter XI.

Of Lippinudo, or Bleare-eyes.

Here are many whose eye are never dry, but alwaies flow with a thinne, acrid and hot humour, which causeth roughneffe, and upon small occasions inflammations, blear or blood-shot eyes, and at length also Strabismus or jetting. Lippinudo is nothing else but a certain white thinth flowing from the eyes, which oft times agglutinates or joynes together the eye-lids. This diseaft often troubles all the life time, and is to bee cured by no remedy: in some it
is curable. Such as have this disease from their infancy, are not to be cured, for it remains with them till their dying day. For large heads, and such as are repulsive with acrid or much excrementitious phlegme, scarce yield to medicines. There is much difference whether the phlegme flow down by the internal vessels under the skull, or by the external which are betwene the skull and the skin, or by both. For if the internal veins calfe forth this matter, it will be difficultly cured, if it be cured at all. But if the external vessels cast it forth, that cure is not unprofitable, which having used medicines respecting the whole body, applies astringent medicines to the thaved crown, as Empl. contra empurum, which may strengen the veins, and as it were suspend the phlegme, useth cupping, and commands friction to be made towards the hinder part of the head, and lastly, maketh a Seton in the necke. There are some who cauterize the toppe of the crown with a hot iron, that it may cast a seale, thus to divert and stay the defucption. For local medicines, a Collyrium made with a good quantity of rofewater, with a little vitrioll dissolved therein, may serve for all.

**Chap. XII.**  
*Of the Ophthalmia, or inflammation of the Eyes.*

Ophthalmia is an inflammation of the eye, being troublesome by the heat, redness, bearing, tenet of the forehead, and lastly paine. It hath its original either by some primitive cause or occasion, as a fall, stroke, dust, or small sand flying into the eyes. For the eye is a smooth part, so that it is easily offended by rough things, as saith Hippocrates, Lib. de carmine. Or by an antecedent cause, as a defluxion falling upon the eyes. The signes follow the nature of the material cause, for from blood especially cholericke and thin, it is full of heat, redness and paine; from the same allied with phlegme all of them are more remiss. But if a heavieffe possess the whole head, the original of the disease proceeds therfrom. But if a hot pain trouble the forehead, the disease may be thought to proceed from some hot dis demeanor of the Dura mater, or the pericranium; but if in the very time of the raging of the disease the patient vomit, the matter of the disease proceeds from the stomacke. But from whence ever it commeth there is scarce that paine of any part of the body, which may be compared to the paine of the inflamed eyes. Verily the greatnesse of the inflammation hath forced the eyes out of their orbe, and broken them asunder in divers. Therefore there is no part of Physicke more blazed abroad than for sore eyes. For the cure, the Surgeon shall consider and intend three things, diet, the evacuation of the antecedent and conjunct cause, and the overcoming it by topick remedies. The diet shall bee moderate, eschewing all things that may fill the head with vapours; and those things used that by affliction may strengthen the orifice of the ventricle, and prohibit the vapours from flying up to the head; the patient shall bee forbidden the use of wine, unless peradventure the disease may proceed from a gross and viticide humour, as Galen delivers it. The evacuation of the matter flowing into the eye, shall be performed by purging medicines, phlebotomy in the arm, cupping the shoulders and neck with scarification, and without; and lastly by frictions, as the Physician that hath undertaken the cure shall thinke it fit. Galen after universal remedies for old inflammations of the eyes, commendeth the opening of the veins and arteryes in the forehead and temples, because for the most part the vessels therabouts distended with acrid, hot and vaporous blood, cause great & vehement paines in the eye.

For the impugning of the conjunct cause, divers topick medicines shall be applied, according to the four sundry times or seasons that every phlegmon usually hath. For in the beginning, when as the acrid matter floweth downe with much violence, repercussives doe much conduce: and tempered with revolving medicines, are good also in the encreafe. &c. as ref. et plantag. an, 38. mucagen, gum. Traganth, 5th, &c.
Of divers proternatural Affects.

Chapter XIII.

Of the Proptosis, that is, the falling or fasting forth of the eye, and of the Phthisis, and Chemosis of the same.

He Greeks call that affect *Proptosis*, the Latines *procerus* or *Axis uteri*.  

It, when as the eye stands, and is cast out of the orb by the occasion of a matter filling and lifting up the eye into a greater bigness, and largeness of substance.  The cure of this disease is sometimes external, as by too violent straining to vomit, by hard labour in child-birth, by excessive and wonderful violent shivering, or crying out. It sometimes happeneth that a great and cruel paine of the head, or the too strait binding of the forehead and temples for the easing thereof, or the pulsie of the muscles of the eye, give beginning to this disease. Certainely sometimes the eye is so much distended by the defluxion of humors, that it breakes inunder, and the humour thereof are fled, and blindefneffe ensues thereof; as I remember befell the filter of *Lewin de Billy* merchant, dwelling at Paris near S. Michael's bridg. The cure shall be diversifyed according to the cauæ. Therefore univerfall medicines being premifed, cupping glaſses shalbe applied to the original of the spinall marrow, and the shoulders; as alſo cauteries, or Setons; the eye shall be preſſed or held downe with clothes doubled and fi Monaent in an aſtringent decoction made of the juice of *Caetea*, red roſes, the leaves of poppy, henbane, roſes and pomegranate pills: of which things poultifes may be made by addition of barly meal and the like.

There is sometimes to be seen in the eye an affect contrary to this, and it is termed *Atrophia*. By this the whole substance of the eye growes lanke and decayes, and the apple it felde becomes much leffe. But if the conumption and emaciation take hold of the pupil onely, the Greeks, by a peculiar name and different from the general, terme it a *Phthisis*, as *Paulus* teacheth. Contrary cauæ shall bee oppoſed to each affect; hot and attractive fomentations shall be applied, frictions shall bee used in the neighbouring parts, and laſſy all things shall be applied which may without danger be used to attract the blood and spirits into the parts.

There is another affect of the eye, of affinity to the *Proptosis*, which by the Greeks is
is termed Chemoysis. Now this is nothing else than when both the eye-lids are turned up by a great inflammation, so that they can scarce cover the eyes, and the white of the eye is lifted much higher up than the blacke. Sometimes the Adnata changing his wont, looketh red; besides also, this affect may take its original from externall causes, as a wound, contusion and the like. But according to the variety of the causes, and the condition of the present affect fixed and remaining in the part, divers remedies shall be appointed.

**Chap. XIV.**

**Of the Ungula, or Web.**

HE Ungula, Pterygium or Web is the growth of a certaine fibrous and membranous flesh upon the upper coate of the eye called Adnata, arising more frequently in the bigger, but sometimes in the lesser corner towards the temples. When it is neglected, it covers not onely the Adnata, but also some portion of the Cornea, and comming to the pupill it selfe hurts the sight thereof. Such a Web sometimes adheres not at all to the Adnata, but is onely stretched over it from the corners of the eye, so that you may thrust a probe betwenee it and the Adnata of severall colours, some whiles red, somewhiles yellow, somewhiles dusky, & otherwhiles white. It hath its originall either from externall causes, as a blow, fall, and the like, or from internall, as the defluxion of humours into the eyes. The Ungula which is inverteate, and that hath acquired much thicknesse and breadth, and besides doth difficultly adhere to the Adnata, is difficultly taken away, neither may it bee helped by medicines whereby scars in the eyes are extenuated. But that which covereth the whole pupill must not bee touched by the Surgeon, for being cut away, the scar which is left by its densitie hindereth the entrance of objects to the crystalline humour, and the egress of the animall spirit to them. But oftentimes it is accompanied with an inflammation of the eyes, a burning itching, weeping defluxion, and swelling of the eye-lids. That the cure may rightly and happily proceed, the patient must be put upon a forme or stool, and made him leane much backe, then must you open his fore eye, putting therein the speculum suoli formerly described in treating of the wounds of this part, and then must you lift up the Web with a sharp little hook, with the point turned a little in, and put under the midft of the Web, when you have lifted it a little up, thrust a needle threaded with a finethread between it & the Adnata, then taking hold of the hooke, and the two ends of the thread drawne through with the needle, and lifting up the Web by them, you shall gently begin to separate it from the substance of the eye lying there-under, beginning at the original thereof with a crooked incision knife, and to prosecute it even to the end, yet so as you hurt no part of the Adnata, nor Cornea.
Then must it bee cut off with a pair of scissors, and the white of an egg beaten with some Rose-water laid therein, and often renewed. Afterwards the eye must every day be opened, lest comming to cicatrization, the eye-lids shall be glued together in that part whereas the Web is taken away, which also shall bee hindred by putting of common salt, Sage and cummin seeds into the eye, being first champed and chewed in the mouth. There are some who in stead of the crooked knife separate the Web from the Adnata with a horse’s hare, others do it with a goose quill made ready for the same purpose, taking heed that they hurt not the caruncle at the corner by the nose, for it will follow if that you draw the Web away too violently; and if it be cut, there will remain a hole through which during the rest of the life a weeping humour will continually flow, a disease by the Greeks termed Rhys. If after the cutting, there be fear of inflammation, linen rags moistened in repelling medicines, formerly prescribed in wounds of the eye, shall be laid thereupon.

CHAP. XV.

Of the E golops, fistula lachrimosa, or weeping Fistula of the eye.

The use of the glandule at the greater corner of the eye.

The different.

Periodical and Typical Fistulae.

The greater corner of the eye there is a glandule, made for the receiving and containing the myoushure which serves for the lubricating and humecting the eye, lest it should dry by continual motion. This Glandule sometimes by a sanguine or pituitous defluxion falling violently from the brain, swells, impostumates & ulcerates with an ulcer, not seldom degenerating into a fistula, so that in success of time it rotteth the bone that lieth under it: of such fistulas, some are open outwardly, and these usually have their original from a phlegmon, others some are inwardly, and those are such as at first swelled by the defluxion or congestion of a phlegmatick matter, so that there appeareth no hole outwardly, but only a tumor of the bigness of a pease, this tumor being pressed, floweth with a purulent, serous and red, or otherwise with a white and viscid matter, and that either by the corner of the eye, or by the inside of the nose. Some have this matter flowing continually, others have it only monthly, which is proper also to some fistulas. Such weeping fistulas if they become old, cause an Asthuma of the eye, and sometimes blindness, & a sighing breath. Therefore we must diligently and speedily by phisical and chirurgical means refit the breeding disease. Wherefore, having used generally medicines, we must come to particulars. Therefore if the ulcer be not sufficiently wide, it shall be enlarged by putting tents of sponge therein,
Lib. 17.
whose cure is performed by surgery.

The effect of an actual cautery.

After the bone is burnt with the cautery, a collyrium made of the whites of eggs beaten in plantain and nightshade waters must be poured into the hole it left, the eye and all the neighbouring parts; but the patient shall be laid in bed, with his head somewhat high, and the collyrium shall be renewed as often and as soon as you shall perceive it to grow dry. Then the fall of the Eschar shall be procured by anointing it with fresh butter; when it is fallen away, the ulcer shall be cleansed, filled with flesh, and lastly cicatrized.

Chap. XVI.

Of the Staphyloma, or grape-like swelling.

Taphi loma is the swelling of the horney and grape-like coat, bred through the occasion of a humor flowing down upon the eye, or by an ulcer, the horney coat being relaxed, or thrust forth by the violence of the pustule generated beneath. It is shape resembling a grape, whence the Greeks call it Staphyloma. This tumour is sometimes blackish, otherwhiles whitish. For if the horney coat be ulcerated and fretted in funder, so that the grape coat shew itself, and fall through the ulcer, then the Staphyloma will looke black like a ripe grape, for the outer part of the Uvea is blackish. But if the Cornea bee only relaxed and not broken, then the swelling appeares of a whitish colour like an unripe grape. The Ancients Paulus and others have made many kindes or differences thereof. For if it bee but a small hole or the whole
broken Cornes by which the Uvca fiweth or thrufteth forth its selfe, they then termed it Myopephalon, that is, like the head of a fly. But if the hole were large, and also callous, they called it Clavus, or a nail; If it were yet larger, then they termed it Aquamus, or a grape. But in what shape or figure forever this defeafe shall happen, it bringeth two difcommodities, the one of blindnesse, the other of deformity. Wherefore here is no place for surgerie to restore the sight, which is already loft, but onely to amend the deformity of the eie; which is by cutting off that which is prominent. But you must take heed that you cut away no more than is fit, for so there would be danger of pouring out the humors of the eye.

CHAP. XVII.

Of the Hypopyon, that is, the suppurate or putrefied eye.

The cause.

Hypopyon, or Quitture is sometimes gathered between the horny and grapy coate from an internall, or externall caufe; From an internall, as by a great defluxion, and oft times after an inflammation, but externall, by a stroke, through which occasion a veine being opened hath poured forth blood thither, which may presently be turned into Quitture. For the cure, universall remedies being presented, cupping-glasses shall bee applied, with scarification, and frictions used. Anodine and digestive collyrie shall be poured from above downwards. Galen writes that he hath sometimes evacuated this matter, the Cornes being opened at the Iris, in which place all the coats meet, concurre and are terminated. I have done the like, and that with good success; James Guillemas the the Kings Surgeon being preuent, the Quitture being expressed and evacuated after the aperation. The Ulcer shall be clenched with Hydromel, or some other such like medicine.

CHAP. XVIII.

Of the Mydriasis, or dilatation of the pupill of the eye.

The cause.

Driasis is the dilatation of the pupill of the eye, and this happeneth either by nature or chance: the former proceedeth from the default of the first conformation, neither is it curable, but the other is of two sorts; for it is either from an internall cause, the off-spring of an humour flowing downe from the braine, wherefore Physicall means must bee used for the cure thereof. Now that which cometh by any externall occaion, as a blow, fall or contusion upon the eye, must bee cured by presently applying repercussive and anodyne medicines, the defluxion must be hindered by diet skilfully appointed, phlebotomie, cupping, scarification, frictions, and other remedies which may seeme convenient. Then must you come to resolvling medicines; as the blood of a Turtle Dove, Pigeon, or Chicken reeking hot out of the veine, being poured upon the eye and the neighbouring parts. Then this following cataplasm shall be applied there-to. Res. farina fabar. & bordei an.3iii. ol. rofar. & myrtillor. an.3i. f. pul. iros fior. 3ii. cum sap. fiat cataplasm. You may also use the following fomentation. Res. rofar. rub. & myrtill.an.mi. storum melil. & chamams.an.p. nemcum cupress. 3i. vims austeri f. 8aq. rofar. & plantag.an.3iii. make a decoction of them all for a fomentation to be used with a sponge.
Cataract is called also by the Greeks Hypophymia, by the Latines, a Cataract.

Howsoever you terme it, it is nothing else but the concretion of an humour into a certaine thin skin under the horny coat, just against the apple or pupil, and as it were swimming upon the watery humour; and whereas the place ought to bee empty, oppressing it selfe to the internall faculty of seeing, whereby it differeth from spots and scars growing upon the horny coat and Adnata. It sometimes covereth the whole pupil, otherwhiles but the one halfe thereof, and somwhiles but a small portion thereof. According to this variety the sight is either quite loft, weake, or somewhat depraved, because the animal vivse spirit cannot in its entire substance passe through the density thereof. The defluxion of the humour whence it proceeds, is either caufed by an external occasion, as a ftraike, fall, or by the heat or coldneffe of the encompassing ayre, troublesome to the head and eyes; or else it is by an internall means, as the multitude; or else the acrid hot and thin quality of the humours. This diseafe also sometimes taketh its original from grottie and fumide vapours sent from a crude stomake, or from vaporous meats or drinks, up to the braine, and so it falleth into the eyes, where by the coldneffe, straitneffe and carrying in the place, they turn into myriffure, and at length into that concretion or flime which wee fee: The signs may be easily drawnne, from that we have already delivered. For when the cataract is formed and ripe, it refembleth a certain thin membrane spread over the pupil, and appeareth of a different colour, according to the variety of the humour whereof it confifteth; one while white, another while blacke, blew, all-coloured, livid, citrine, greene. It sometymes refembl eth quicksilver, which is very trembling and fugitive, more than the rest. At the first when it beginneth to breed they feme to fee many things, as flyes flying up and downe, haires, nes, and the like; as if they were careleffly tossed up and downe before their eyes: sometymes every thing appeareth two, and somewhiles leffe than they are; because the vivse spirit is hindered from paffing to the objects by the density of the skin, like as a cloud shadowing the light of the Sun. Whence it is that the Patients are duller lighted about noon, and furer and quicker lighted in the morning and evening, for that the little vivse spirit diffused through the aire, is difpersed by the greater light, but contracted by the leffe. Now if this flime cover halfe the pupil, then all things fhew but by halfe; but if the midft thereof bee covered and as it were the center of the Chriftalline humour, then they feme as if they had holes or windowes: but if it cover it all, then can he fee nothing at all, but onely the shadowes of visible bodies, and of the Sun, Moone, Stars, lighted candles, and the like luminous things, and that but confufedly and as by conjecture.

Beginning Cataract is hindered from growing and concretion by diet conveniently and artificially prescribed, by the abstinence from wine, especially more strong and vaporous, and forbearing the ufe of meats, which yeld a legmaticke juice and vaporous, as peafe, beans, turneps, cheifns, and laftly all fuch things as have the faculty of flirring up the humours, and causing defluxion in the body, fuch as are all salt & spiced meats, as also garlike, onions, mustard. The immoderate ufe of venery hurts more than all the rest, for that it more violently exagritates the whole body, weakens the braine and head, and begets crude humours.
Let his bread be seasoned with some fennel seeds, for it is thought to have a faculty of helping the sight, and clearing the eyes, and disfiguring the miliary vapours in the stomacke before they can ascend to the braines. Wherefore by the same reafon it is good to use marmelade of quinces, conserve of roses, and common drige powder, or any such like composed of things good to break wind, or corrobate the ventricle. Phlebotomie and purging, if they be requisite, shall be ftedy appointed: Ventiles shall be applied to the shoulders and necke, the phlegmaticke matter shall be diverted and evacuated by the mouth with using maficatories in the morning. There be some which believe that a beginning catarrh may be disfigured and disfigured by often rubbing the eye-lids with the fingers, and in like fort by the often and earnest beholding of the Starres, and the Moone when it is at the full, looking-glasses, diamonds, and all other such like bright shining things. I beleve that by beames plentifully and suddenly brought and diffused over the eye, directly opposition against some bright shining things, it may feeme to have a penetrating, dividing, diffolving, as also a confusing and drying faculty. Besides, also the hot breath of him who holdeth in his mouth, and cheweth fennel seeds, aniseds, coriander-seeds, nutmeg, cinnamon, cloves, and the like, hath a great faculty, the eyes being first gently rubbed with the fingers, it being breathed in, neare at hand and often receiv'd, to heat, attenuate, resolve, digest, and diffuse the humour which is ready to concrea. Moreover, this collyrium of John Vigo is thought very powerfull to clear the eyes, strengthen the sight, hinder fuffusions, and difcuffle them if at any time they concrea and beginne to gather. 

By what signes ripe and curable catarrhs may be discerned from unripe and uncurable ones.

If the sound eye being shut, the pupill of the fore or suffused eye, after it shall be rubbed with your thumbe, bee presently dilated and diffused, and with the like celerity returne into the place, figure, colour and state, it is thought by some to shewe a ripe and confirmed catarrh. But an unripe and not to be couched, if the pupill remaine dilated and diffused for a long while after. But it is a common signe of a ripe, as also more dense and consequently uncurable diffusion, to bee able to see not distinguishing no visible thing beside light and brightnesse; for to discern other objects theweth that it is not yet ripe. Therefore the sound eye being shut and pressed, the pupill of the other rubbed

Chap. XXI.
with your thumb, is dilated, enlarged, swelleth and is more diffused; the five spirits by this compression being as it were forced from the sound into the sored eye. But these following cataracts are judged incurable, that is, such as are great, such as when the eye-lid is rubbed are nothing dilated or diffused, whose pupil becomes not broader by this rubbing; for hence you may gather that the stopping or obstruction is in the opticke nerve; so that how cunningly and well forever the cataract be couched, yet will the patient continue blind; you shall do no more good in couching a cataract, which is in an eye confused and wafted with a phthisis. Also that cataract is incurable which is occasioned by a most grievous disease, to wit, by most bitter and cruel pains of the head, or by a violent blow. Such as are of a plaster-like, green, blacke, livid, citrine and quicksilver-like colour, are usually incurable. On the contrary, such as are of a Chelme colour, or of a skye or sea-water colour, with some little whiteneffe, ye shall find great hope of a happy and successefull cure.

**Chap. XXI.**

Of the couching a Cataract.

First you shall know by the foregoing signes, that the Cataract is curable, it remains that you attempt the couching thereof; but if that there be nothing which may hinder. For if the paine of the head, cough, nauseae, or vomiting at that time trouble the patient, you shall then bestow your labour in vain: Wherefore you must expect until these symptoms be gone. Then make choice of a season fitting for that purpose; that is, in the decrease of the moon, when the air is not troubled with thunder nor lightening, and when as the Sunne is not in Aries, because that signe hath dominion over the head. Then let the Surgeon consult a Physitian whether purging or bloud-letting be convenient for the Patient, so to refist phletorick symptoms, otherwise ready to yield matter for rapace.

Two dayes after you must make choice of a place furnished with indifferent or competent light, and the Patient being falling shall be placed in a strait chair, so that the light may not fall with the beams directly upon him, but sidewise. The eye which shall bee cured must bee made more steady, by lying and binding wool upon the other; Then the Surgeon shall Fear and place himself directly against the Patient upon a seat somewhat higher, and bidding the Patient put his hands downe to his girdle, he shall hold the patients legges betweene his knees. One shall stand at the Patients backe who shall hold his head and kepe it from stirring; for by a little stirring hee may lose his fight for ever. Then must you prepare and make ready your needle, and thrust it often into some strong thicke cloth, that it may bee as it were smoothe by this motion, and for the performance of the work in hand with the leffe paine somewhat warmed. It must bee made of iron or fcele, and not of gold or silver, it must be also flatted on the fides, and tharpe pointed, that so it may the better pierce into the eye, and wholly couch the Cataract once taken hold of; and left it should flip in the Surgeons hand, and be leffe fteddy, it shall bee put into a handle, as you may see by the following figure.

A Needle inserted in a Handle for the Couching of Cataracts.
All things being thus in a readiness, you must bid the patient to turn the light of his eye towards his nose, and the needle must be boldly thrust (for it is received in a place that is void of the Adama), in the middle space between the lesser corner & the horny coat, just against the midft of the Cataracts, yet so, as that you hurt no vein of the Adama, & then by stirring it as it were diversely untill it come to the midft of the pupil and suffusion, and there to be stirred gently untill by little and little it couch or bring down the Cataract as whole as may be beneath the compass of the pupil, let him till follow it though couched with his needle, and somewhat violently depress it, and keep it down for some short space, that for so many yeft and stay in that lower place whether it is depressed. The Surgeon shall try whether it firmly remaine there or no, bidding the patient presently to move his eye. For if it remaine constantly so, and doe not returne againe, the cure is perfect. Then must the needle be lifted up by little and little, neither must it presently be taken forth, that if the Cataract should beare up, or rife againe, that it might againe, and so often (whilft the worke is yet hot, and all things in a readiness) be couched towards the lesser corner, untill it be fully and fiercely hid. Then must you draw backe the needle gently, and after the same manner as you put it in; left if you use not moderation, you bring backe the Cataract, from whence you couched it, or grievously offend the crystalline humour, the prime instrument of fight, or the pupil with danger of dilating thereof. Some as soone as the worke is done, give the patient something in his hand to look upon: but Fauius approves not thereof, for bee fears lest his endeavouring or striving to see, may draw back the Cataract. Wherefore it is more wisdome and better presently after the drawing forth of the needle, to put on a soft ragge the white of an egge beaten in rofe-water with a little choice alum, and so apply it to the eye and neighbouring parts for to binde and hinder the inflammation; then also you must together therewith bind up the found eye, lest by stirring to see, it might together therewith draw and move the fore eye, by reason of the sympathy and consent they mutually have by the opticke nerves. After all things are thus performed, the patient shall bee laid in a soft bed, & so placed, that his head may lye from what high, let him be laid far from noise, let him not speake, nor eate any hard thing that may trouble his jawes, wherefore let him feed upon liquid meats, as ponado, barly cream, cullisses, gellyes, rare eggs, and other meates of the like nature. At the end of eight dayes the ligature that binds up his eyes shall be loosed, and his eyes washed with rofe-water, and putting on spectacles, or some taffaty, the patient shall by little and little accustome himselfe to the light, left he bee offended by the sudden meeting with light. But if the suffusion, after some short while after, lift it fell up again, it must bee couched again, but through a new hole, for the eye is pained and tender in the former place. It sometimes happens by the touch of the needle that the Cataract is not couched whole, but is broken into many pieces; then therefore each of them must be followed, and couched severally: if there be any very small particle which seizes the needle, it must bee let alone, for there is no doubt but that in proccede of time it may be dissolv'd by the force of the native heat. There are also some Cataracts which at the first touch of the needle are diffufed & turne into a substance like to milke or troubled water, for that they are not thoroughly ripe, yet these put us in good hope of recovery, and it bee but for this, that they can never afterwords concrete into one body as before. Wherefore at the length they are also discufsed by the strength of the native heat, and then the eye recovers its former splendor. If that any other symptomes come unlooked for, they shall be helped by new counsels and their appropriate remedies.
Chap. XXIII.

Of the stopping of the passage of the ears, and the falling of things thereinto.

Sometimes it happeneth that children are born without any holes in their ears, a certaine fleshly or membranous substance growing in their bottom or first entrance. The same may also happen afterwards by accident, they being ulcerated by some impoverishment or wound, and the ear shut up by some fleshly excrescence or scar. When the stopping is in the bottom of the cavity, the cure is more difficult than if it were in the first entrance. But there is a double way of cure; for this substance, whatsoever it be, must either be cut out, or else eaten away and consumed by acrid and cathartic medicines, in performance of which there is need of great moderation of the mind and hand. For it is a part endued with most exquisite sense and near the braine, wherefore by handling it too roughly, there is fear of distension of the nerves, and consequentely of death.

Sometimes also the preternatural falling of strange bodies into this passage, maketh a stopping of the ears, such as are fragments of stones, gold, silver, iron and the like metals, pearls, cherry-stones, peas and other such like pulse. Now solid and bony bodies still retain the same magnitude, but peas, seeds and kernels, by drawing the moisture there implanted into them, swell up and cause vehement pain by the distension of the neighbouring parts, wherefore the sooner they are drawn forth, the better it is for the patient. This shall be done with small pincers and instruments made in the shape of earepicks. But if you profit nothing thus, then must you use such gymblets as are made for the drawing forth of bullets shot deep into the body. Little stones and bodies of the like stony hardnesse shall be forced forth by the brain, provoked to concoction by sneezing, & by dropping some oyle of almonds first into the passage of the eare, that the way may be the more slippery, for it will come to passe by this sneezing, or violence of the internal aire forcibly seeking passage out, that at length they may bee cast forth, the mouth and nostrils being stopped with the hand. But it wee cannot thus prevail, it remaines, that we euer open the passage with an incision knife, so much as shall be sufficient for the putting in and using of an instrument for to extract them. If any creeping things of little creatures, as fleas, ticks, pismires, gnats and the like, which sometimes happeneth, shall get therein, you may kill them by dropping in a little oyle and vinegar. There is a certaine little creeping thing, which for piercing and getting into the ears, the French call Perce-oreille (a cease-wigge). This, if it chance to get into the ear, may be killed by the said means, you may also catch it, or draw it forth by laying halfe an apple to your ear, as a bait for it.

Chap. XXIV.

Of getting of little bones and such like things out of the jaws and throat.

Sometimes little bones and such like things in eating greedily use to stick, or as it were fallen themselves in the jaws or throat. Such bodies if you can come to the sight of them shall bee taken out with long slender and crooked mallets made like a Cranes beak. If they do not appear, nor there be no means to take them forth, they shall be cast forth by causing vomit, or with swallowing a crust of bread, or a dry fig gently chawed, and so swallowed; or else they shall be thrust downe into the stomacke, or plucked back with a leek, or some other such like long and stiffe crooked body adorned with oile and thrust downe the throat. If any such like thing shall get into the Wazons...
The Tooth a dreadful paine.

All paines, there is none which more cruelly tormenteth the patient than the Tooth ache. For we see them oftentimes after the manner of other bones to suffer inflammation, which will quickly suppitate, and they become rotten, and at length fall away piece by piece; for we see them by daily experience to be eaten and hollowed, and to breed worms, some portion of them purifying. The cause of such paine is either internal, or external and primitive. The internal is a hot or cold defluxion of humour upon them, filling their fockets, & thence consequently driving out the teeth; which is the reason that they stand sometimes so farre forth, that the patient neither dares nor can make use of them to chew for fear of paine; for that they are loose in their fockets by the relaxation of the gums, caused by the falling downe of the defluxion. When as they are rotten and perforated even to the roots, if any portion of the liquor in drinking, fall into them, they are pained as if you thrust in a pin or bodkin, the bitterness of the paine is such. The signes of a hot defluxion are sharp and prickling paine, as if needles were thrust into them, a great pulsation in the rootes of the pained tooth and the tempe; and some ease by the use of cold things. Now the signes of a cold defluxion are a great heaviness of the head, much and frequent spitting, some mitigation by the use of hot remedies. In the bitterness of paine we must not presently run to Tooth-drawers, or cause them presently to goe in hand to pluck them out. First consult a Phyfician, who may prescribe remedies according to the variety of the caufes. Now here are three intentions of curing. The first is concerning diet; the other for the evacuation of the defluxion or antecedent cause; the third for the application of proper remedies for the affluaging of paine. The two former scopes, to wit, of diet, and diverting the defluxion by purging, phlebotomie, application of cupping glaides to the necke and shoulders, and scarification, doe absolutely belong to the Phyfitian. Now for proper and topick medicines they shall be chosen contrary to the cause. Wherefore in a hot cause, it is good washing the mouth with the juice of Pomgranats, plantaine water, a little vinegar wherein roses, balantia and jumach have beene boiled. But such things as shall be applied for the mitigating of the paine of the teeth, ought to bee things of very subtile parts, for that the teeth are parts of dense consistence. Therefore the ancients have always mixed vinegar in such kind of remedies. R. rof. rub. jumach, bordoi, an. m. 6, feminis hyoscyami conqustradi 3ii, femelorum an. 3i. laudace sumpitatum rubi, fo- lani, plantaginis, an. 3ii. bulbant omnis in aqua lib. iii. & pauro acetum dordis crepaturo- ram. Wash the mouth with such a decoction being warme. You may also make Trochicees for the same purpose after this manner. R. fem. hyoscyami, sandaraca, cori- andri opii an. 3ii. terrautum & cum acetum incorporantur, formenturque trochiceis ap posteriori denitibus dolentibus. Or else, R. feminis pastulace, hyoscyami, coriandri, lentium, cortisifantali ciurini, rof. rub. pyrethri, camphora, an. 3ii. Let them all bee beaten together with strong vinegar, and made into trochicees, with which being dissolved in rofe water, let the gums and whole mouth bee washed when need requireth. But if the paine bee not affluaged with these, you shall come to narcoticks, which may stabifie the nerves; R. feminis hyoscyami albi, opii camphora, popaveris albi, an. quant- tum suffici, eaque sufficiet, cum autocum sapo, et deni applicentur. Besides, you must also use this following medicine into the eare of the pained side. R. opii & cafores, an. 3ii. miste- ntorum cum oleosofato: It hath sometimes availed in swollen and distended gums, being first lightly scarified, to have applied leaches, for the evacuation of the conjunct matter, as also to have opened the veins under the tongue, or else which are behind the eares. For I remember that I, by these three kinds of remedies, affluaged great paines
Lib. 17.

whose Cure is performed by Surgery.

Pains of the teeth arising from a cold cause and defluxion, may be helped by these remedies; Boyle rotemary, lage, and pellitory of Spaine in wine and vinegar, and adder there a little aqua vitae, in this liquor dissolve a little treacle, and wash your teeth therewith. Others mingle Gum ammoniacum dissolved in aqua vitæ with a little sandarache and myrrh, and lay it to the pained tooth, after Figges confaifa, Mefie thinks that beaten garlìcke carried in the right or left hand, allwages the paine, as the teeth ake upon the right or left side. But I being once troubled with grievous paine in this kinde, followed the counfaile of a certaine old woman, and laid garlìcke rosted under the embers to my pained tooth, and the paine forthwith ceased. The same remedy used to others troubled with the like affer, had like succeffe. Moreover, some think it valuable if it bee put into the auditory passage. Others drop into the ears oile of cafliorem, or of cloves, or some other chymicall oile. It is good also to wash the teeth with the following decoction. R. rad. pyrethri 30, menthae rutae a. p. brillian in aq. ac. and with this decoction being warme, wash the teeth. Some like fumes better, & they make them of the seeds of Colquihus and muscarda, and other like, they take the fmoake by holding their mouths over a funnel. Other some boil pellitory of Spaine, ginger, cinammon, alume, common falt, nut megs, ciprefse nuts, anife and myrrhe and eucalyptus in oxcarone, and in the end of the decoction add a little aqua vitae, and receive the vapour thereof through a funnel: as alfo they wash their teeth with the decoction, and put cotton dipped therein into the ear, if the tooth be hollowed, and there is any viscid matter, than to put in caulifick medicines, as oile of vitrioll, aquafortis, and also a hot iron, for thus the nerve is burnt inferiour, and lootheth its fene. Yet some affirm that the milky juice that flows from Spurge made into a paste with Argis and amlum and put into the hollowed tooth, will make it presently to fall away in pieces. When the Gums and Cheekes are swollen with a manifest tumour, then the patient begins to be somewhat better and more at ease. For so by the strengt of nature, the tumor causing the paine is carryed from within outwards. But of what nature soever the matter which causeth the paine be, it is convenient to intercept the course thereof with Empl. contra rupturam, made with pitch and maftick, and applied to the temple on that side where the tooth aketh.

Paine of the teeth arising from a cold cause and defluxion, may be helped by these remedies; Boyle rotemary, lage, and pellitory of Spaine in wine and vinegar, and adder there a little aqua vitae, in this liquor dissolve a little treacle, and wash your teeth therewith. Others mingle Gum ammoniacum dissolved in aqua vitæ with a little sandarache and myrrh, and lay it to the pained tooth, after Figges confaifa, Mefie thinks that beaten garlìcke carried in the right or left hand, allwages the paine, as the teeth ake upon the right or left side. But I being once troubled with grievous paine in this kinde, followed the counfaile of a certaine old woman, and laid garlìcke rosted under the embers to my pained tooth, and the paine forthwith ceased. The same remedy used to others troubled with the like affer, had like succeffe. Moreover, some think it valuable if it bee put into the auditory passage. Others drop into the ears oile of cafliorem, or of cloves, or some other chymicall oile. It is good also to wash the teeth with the following decoction. R. rad. pyrethri 30, menthae rutae a. p. brillian in aq. ac. and with this decoction being warme, wash the teeth. Some like fumes better, & they make them of the seeds of Colquihus and muscarda, and other like, they take the fmoake by holding their mouths over a funnel. Other some boil pellitory of Spaine, ginger, cinammon, alume, common falt, nut megs, ciprefse nuts, anife and myrrhe and eucalyptus in oxcarone, and in the end of the decoction add a little aqua vitae, and receive the vapour thereof through a funnel: as alfo they wash their teeth with the decoction, and put cotton dipped therein into the ear, if the tooth be hollowed, and there is any viscid matter, than to put in caulifick medicines, as oile of vitrioll, aquafortis, and also a hot iron, for thus the nerve is burnt inferiour, and lootheth its fene. Yet some affirm that the milky juice that flows from Spurge made into a paste with Argis and amlum and put into the hollowed tooth, will make it presently to fall away in pieces. When the Gums and Cheekes are swollen with a manifest tumour, then the patient begins to be somewhat better and more at ease. For so by the strengt of nature, the tumor causing the paine is carryed from within outwards. But of what nature soever the matter which causeth the paine be, it is convenient to intercept the course thereof with Empl. contra rupturam, made with pitch and maftick, and applied to the temple on that side where the tooth aketh.

He teeth are also troubled with other preternatural affeSs. For sometimes they ake by relaxation of the gums, or else become corrupt and roten, or have worms in them, or cleare let on edge. For the firt, the gums are relaxed either by an externall or primitive cause, as a fall or blow: or else by an internall or antecedent, as by the defluxion of acrid or waterish humours from the braine, or through want of nourishment in old bodies. If the teeth grow long by the means of the decaying gums, the disease is then incurable: but you may still and the other acaee by the use of fuch things as fasten the teeth, shunning the contrary fuch as may loosen them. Therefore the patient must not speak too amitel, neither chaw hard things. If they become loose by a fall or blow
blow, they must not bee taken forth, but restored and strengthen to the next that remaine firm, for in time they will be confirmed in their sockets, as I tryed in Antho-
y de la Rue a tailour, who had his jaw broken with the pommeIl of a dagger, and
three of his teeth loosened and almost flaken out of their sockets; the jaw being re-
stored, the teeth were also put in their places, and bound to the ref with a double
waxed thread; for the refl, I fed the patient with brothis, gelatines, and the like, and
made astringent gargarifmes of cyprefl nuts, myrtle berries, and a little aulm boyld
in oxycrake, and I wished him to hold it a good while in his mouth; by these means
I brought it fo to paffe, that hee within a while after could chaw as easily upon thofe
teeth, as upon the other. I heard it reported by a credible perfon, that hee faw a Lady
of the prime nobility, who instead of a rotten tooth he drew, made a sound tooth,
drawne from one of her waiting maids at the fame time, to be substitut and infer-
fered, which tooth in proclaffe of time, as it were taking roote, grew fo firme, as that
the could chaw upon it as well as upon any of the refl. But as I formerly faid, I have
this but by heare-fay.

The caufes of hollow teeth.

Now the teeth are corroded or eaten in by an acride and thinne humour pene-
trating by a plenteous and frequent defluxion even to their roots, and being there
contained, it putrefies, and becoming more acride, it doth not only draw the teeth
into the contagion of its putrefation, but alfo perforats and corrodes them.
The putrefation may bee corrected, if after generall medicines, you put oile of
vitrioll or aqua fortis into the hole of the eaten tooth; or elfe, if you burne the tooth
it felfe to the roote with a small iron wyar being red hot: you fhall thruft this hot i-
ron through a pipe or cane made for the fame purpofe, left it fhould harm any found
part by the touch therof, and thus the putrefaction, the caufe of the afrofion, may be
flayed. But if the hole bee on the one side between two teeth, then fhall you file a-
way fo much of the found tooth as that you may have fufficient liberty to thruft in
your wyar without doing any harme.

The forms of Files made for filing the teeth.

Wormes breeding by putrefation in the roots of the teeth, fhal be killed by the
ufe of caflifticks, by gargles or lotions made of vinegar wherein, either pellitory of
Spain hath bin steeped, or Treacle dif溶解d alfo; Alces and Garlike are good to be
ufe for this purpofe.

Setting the teeth on edge happens to them by the immediate eating of acride or
tart things, or by the continual affcent of vapours endowed with the fame quality,
from the orifice of the ventricle to the mouth, or by a cold defluxion, especially of a-
crid plage, falling from the braine upon the teeth, or ol by the too exceflive
ufe of cold or fyping liquors. This affef is taken away, if other generall medi-
cines and huming thole things that cherifh the difafe, the teeth bee often washed
with aqua vita, or good wine wherein fage, rotemary, cloves, bimems and other
things of the like nature have bin boyled.
Chap. XXVII.

Of drawing of teeth.

Teeth are drawne, either for that they cause intolerable paines, which will not yeeld to medicines, or else for that they are rotten and hollowed, or that they cause the breath to smell; or else for that they infect the sound and whole teeth, and draw them into the like corruption, or because they stand out of order. Besides, when they are too deep and strongly rooted, so that they cannot be pluckd out, they must oft times be broken of necessity, that so you may drop some caustick thing into their roots, which may take away the senfe, and consequently the paine. The hand must be used with much moderation in the drawing out of a tooth; for the jaw is sometimes dislocated by the too violent drawing out of the lower teeth. But the temples, eyes and braine are shaken with greater danger by the too rude drawing of the upper teeth. Wherefore they must first be cut about, that the gums may be loosened from them, then shake them with your fingers, and doe this untill they begin to be loose; for a tooth which is fast in, and is pluckd out with one pull, oft-times breaks the jaw, and brings forth the piece together therewith, whence follow a fever and a great fluxe of bloud not easily to be stayed (for bloud or flowing out in great plenty is, in Celsiue opinion, the signe of a broken bone) & many other maligne and deadly symptoms; some have had their mouthes drawne so awry, during the rest of their lives, so that they could scarce speake. Besides, if the tooth be much eaten, the hole thereof must be filled either with Lint, or a cork, or a piece of lead well fitted thereto, lest it be broken under your forceps, when it is twitched more straitly to be pluckd out, and the root remaine ready in a short time to cause more grievous paine. But judgement must be used, and you must take speciall care left you take a sound tooth for a pained one; for oft times the patient cannot tell, for that the bitterneffe of paine by neighbourhhood is equally diffused over all the jaw. Therefore for the better plucking out a tooth, observing the things which I have mentiond, the patient shall be placed in a low seat, bending back his head between the Tooth-drawers legs; then the Tooth-drawer shall deeply scarifie about the tooth, separating the gums therfrom with the instruments marked with this letter A, and then if spoyled as it were of the wall of the gums, it grow loofe, it must be shaken and thrust out by forcing it with the three-pointed levatory noted with this letter B, but if it slike in too falt, and will not slike at all, then must the tooth be taken hold of with some of these toothed forceps marked with the letters C, D, E. now one, then another, as the greateffe figure, and fire shall seeme to require. I would have a tooth-drawer expert and diligent in the use of such toothed mullets, for unleffe one know readily and cunningly how to use them, he can scarce fo carry himself, but that he will force out three teeth at once, oft-times leaving that untoucht which caused the paine.
After the tooth is drawn, let the blood flow freely, that so the part may be freed from pain, and the matter of the tumor discharged. Then let the tooth-drawer pluck the flesh of the gums on both sides with his fingers whereas he took out the tooth, and so the socket that was too much dilated and oft times torn by the violence of the plucke, may be closed again. Lastly, the mouth shall be washed with oxycrate, and if the weather bee cold, the patient shall take heed of going much in the open air, lest it cause a new defection upon his teeth.

CHAP. XXVIII.

Of cleaning the Teeth.

Eites of meat in eating sometimes stick between the teeth, and becoming corrupt by long staying there, do also hurt the teeth themselves, and spoil the sweetnesse of the breath. Hee that would eschew this, ought presently after meat to wash his mouth with wine mixed with water, or oxycrate, and well to cleanse his teeth that no flimy matter adhere to them. Many folks teeth by their owne default gather an earthy filth of a yellowish colour, which eates into them by little and little, as rust eates into iron. This rustie filthynesse, or as it were mouldiness of the teeth, doth also oft times grow by
by the omitting of their proper duty, that is, of chawing. Whence ever this ill. my fifth proceeds, we must get Dentifrices to fetch it off withall, and then the teeth must be presently rubbed with aqua fortis and aqua vitae mixed together, that if there be any thing that hath escaped the Dentifrices, it may be all fetched off; yet such a

Dentifrices shall be made of the root of marsh mallows boiled in white wine & Alum and as when the teeth are loose we must abstain from such things as are hard to be eaten and chawed, but much more from breaking of such things as are of a bony consistence, also here we must (hunke all things that by their toughness (lick to the teeth. Many for the cleaning of the teeth, commend a powder made of fre
ttle bones, purple shells, pumice stone, burnt alum, and harts horn, and a little cinamon which is a singular remedy for the teeth howsoever affected. Many other are content with bread only tosted & beaten, but this following water is very effectuall to whiten the teeth.

Dentifrices (hall be made of the root of marsh mallows boiled in white wine & Alum and as when the teeth are loose we must abstain from such things as are hard to be eaten and chawed, but much more from breaking of such things as are of a bony consistence, also here we must (hunke all things that by their toughness (lick to the teeth. Many for the cleaning of the teeth, commend a powder made of fre
ttle bones, purple shells, pumice stone, burnt alum, and harts horn, and a little cinamon which is a singular remedy for the teeth howsoever affected. Many other are content with bread only tosted & beaten, but this following water is very effectuall to whiten the teeth.

Chap. XXIX.

Of the impediment and contraction of the Tongue.

The tongue is sometimes tyed and short from the nativity; as when the liberty of the tongue is restrained by the subject and neighbouring as well membranes as muscles, being either too short or too hard. Sometimes this disease happens after they are borne by some accident or pre
ternatural affection, as by too hard a scarre left by the healing of an ulcer under the tongue. The patient at his beginning to speake, is too slow in speaking, but presently leaving his slownesse hee becomes too quicke, so that he flammers. If the disease proceed from the affright and shortness of the ligamentall membrane lying under the tongue, then the incision shall be made broadwise, having pat care that the veins and arteries which are there, be not violated, for feare let they should cause a hamorrhage not easily to be stayed. Then the mouth shall be presently walked with oxycrat, and some lint dipped in fruppe of dryed roses, or honey of roses put into the midift of the incision, left the part of the ligament, especially on the night time when the tongue is silent and at rest, should grow to the rest of the ligament. For the fame purpose the finger shall be often thruf through this way, and the tongue more violently rowld up and down, & thruf out of the mouth. Yet sometimtes this ligament is so thick & short, and therefore holds down the tongue so clofe, that you cannot come to cut it with a knife or lancet without great and manifest danger of death by bleeding. Therefore in such a case a needle and thread shall bee thrust through it, and so the thread shall be tyed faster and faster every day, until by little and little this ligamentall eie of the tongue, which by its immediate shortness intercepts the liberty of the motion shall be consumed and broken.

Chap. XXX.

Of superfluous Fingers, and such as stick together.

Ach hand hath naturally five fingers onely; whatsoever is more or leffe is against nature; and if there be fewer, it is a fault not to be helped by art. But if there be more, that for the most part may be helped by art: superfluous fingers usually grow by the thumb, or the little finger, but seldom otherwise. There are either wholly flathy, or have bones of their kind and nailes upon them. Those which are of a bony nature doe either arise from the joints of the natural fingers, and are joyned like them, and so are oftentimes

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moveable, or else from some middle space of a joint, and these have not power to stirre or move. Now they are sometimes equall in magnitude to the naturall fingers to which they grow, yet more frequently they are shorter. Those which are onely flechy, are easily amputated and made even with a razour; but such as are also bony cannot be cut off, unleffe with the cutting mullets hereafter described, and this is a diseale of the fingers in number. There is also another diseale in figure, for they sometimes slique together, and otherwhiles they are very little separated. This fault happens either from the first originall by the error of the formative facultie; or else it happens afterwards by accident, as by a wound or burne ill cured. For neighbouring fingers being ulcerated do easilie grow together, unleffe they be kept asunder by a linen ragge. And if they by chance shall grow together by a little and thin skinne and flesh, they shall forthwith be divided with a sharp razour; but if they be joined by the interpoition of a more groffe and dense substance, to wit, the nerves, tendons, and vessells, being knit together on each side, it will be best not to meddle at all with the dividing them.

Cutting Mullets neatly made for the cutting off superfluous Fingers.

Neither must wee omitt, that many have their nailes run with such bony sharpnesse into the flesh of their fingers lying under them, that they cause most cruel pain; neither commonly do you avall any thing by paring them; for growing up within a while after, they presse downwards againe with the more violence. Therefore the Surgeon is often forced to cut away all the flesh whereinto the sharpnesse of the naile runs. Which I have done in many with happy success. Many have corns growing upon their fingers in divers fashions: They are taken off by paring away by little and little the callous hardnesse, and then laying a head of garlick beaten thereon. Yet the cure is more quick and certaine which is performed by cautickes, as aqua fortis, or oile of vitrioll.

Chap. XXXI.

Of the too short a Prepuce, and of such as have bin circumcised.

Hen as the Prepuce or foreskin is too short, it cannot cover the glans. This happens either by nature, to wit, by the first conformation, or afterwards by some accident, as to those whom religion and the custome of their nation bids to be circumcised. The cure is thus: The Prepuce is turned up, and then the inner membrane thereof is cut round, and great care is had, that the vesse and arterie which are there betweene the two membranes of
of the Prepuce, be not cut under. Hence it is drawn downward by exten- 
sion, until it cover the Glans, a deficcative emplaster being first put between it and the Glans, left they should grow together. Then a pipe being first put into the urinary passage, the prepuce shall be there bound until the incision be cicatrized. This cure is used to the Jews, when having abjured their religion full of superstitions, for handfome sake, they would cover the nut of their yard with a prepuce, and so recover their cut off skinne.

Chap. XXXII.

Of Phymosis and Paraphymosis, that is, so great a contraction of the prepuce about the Glans or Nut, that it cannot be bared or uncovered at pleasure.

He prepuce is straitened about the Glans two ways; for it either covers the whole nut, & so straitly compasses the end thereof, that it cannot be drawn upwards, and consequently the nut cannot be uncovered; or else it leaves the Glans bare under it, being fastened so straitly to the roots thereof, that it cannot be turned up, nor drawn down, or over the Glans. The first manner of contraction is termed Phymosis, the latter Paraphymosis. The Phymosis happens either by the fault of the first formation, or else by a carce, through which occasion the prepuce hath grown fatter, as by the growing of warts. Now Paraphymosis is often occasioned by the inflammation of the yard, by impure copulation; for hence ulcers breed between the prepuce and Glans, with swelling, and so great inflammation, that the prepuce cannot be turned backe. Whence it is that they cannot be handeled and cured as you would, and a gangrene of the part may follow, which may by the contagion bring death to all the body, unless it be hindered & prevented by amputation: but if a fear be the cause of the contraction of the prepuce, the patient being plac'd in a convenient fire, let the prepuce be drawn forth and extended, and as much as may be stretched and enlarged, then let the scarre be gently cut in three or foure places on the inner side with a crooked knife, but so, that the gages come not to the out side, and let them be an equal distance each from other. But if a filthy excrescence or a wart shall be the occasion of this straitnesse and contraction, it shall be confumed by the fame remedies, by which the warts of the wombe and yard are consum'd or taken off. But when as the prepuce doth clofeely adhere to the Glans on every side, the cure is not to be hoped for, much leffe to be attempted.

Chap. XXXIII.

Of those whose Glans is not rightly perforated, and of the too short or strait ligament, bridle, or Cord of the yard.

Some at their birth, by evill conformation, have not their Glans perforated in the middle, but have only a small hole underneath, toward the bridle & ligament of the yard, called the cord. Which is the cause, that they do not make water in a strait line, unless they turn up their yard toward their belly, neither by the same reason can they beget children, because through this fault of conformation, the seed is hindered from being cast directly into the wombe. The cure is wholly chirurgicall, and is thus performed. The prepuce is taken hold of and extended with the left hand, but with the right hand, the extremity thereof, with the end of the Glans, is cut even to that hole which is underneat. But such as have the bridle or ligament of the yard too short, so that the yard cannot stand straignt, but crooked, and as it were turned downwards; in these also the generation of children is hindered, because the seed cannot be cast directly and

plenti-
Children also are sometimes borne into the world with their fundament unperforated, for a skinner preternaturally covering the part, hinders the passage forth of the excrements: those must have a passage made by art with an instrument, for so at length the excrements will come forth; yet I have found by experience, that such children are not naturally long lived, neither to live many days after such section.

HE stones which are in the bladder have for the most part had their first original in the reins or kidneys; so wise falling down from thence by the ureters into the bladder. The caufe of thefe is twofold, that is, material and efficient. Groff, tough, and viscid humours, which produce by the distempers of the bowels and immoderate exercis, chiefly immediately after meat, yeild matter for the stone; whence it is that children are more subject to this disease than other ages. But the efficient caufe is either the immoderate heat of the kidneys, by meanes whereof the subtler part of the humors is tefolved, but the grotfer and more earthly fubfides, and harden as we fee bricks hardened by the fun and fire; or the more remilfe heat of the bladder, fufficient to bake into a stone the facers or drogees of the urine gathered in great plenty in the capacity of the bladder. The straighnedneffe of the ureters and ureinary passage may be accounted as an affiitant caufe. For by this meanes the thinner portion of the urine floweth forth, but that which is more feculent and muddy being ftaied behind, groweth as by fcals upon fcals, by addition and collection of new matter into a ftony maffe. And as a weeke of ten times dipped by the Chandler into melted tallow, by the copious adherion of the tallowy fubflance prefently becomes a large candle; thus the more groffe and viscid facers of the urine, as it were at the barres of the gathered gravel, and their continuall appulfe are at length wrought and fashioned into a true stone.
of the bladder to expel the stone wholly contrary to the nature thereof, wherefore by sympathy the expulsive faculty of the guts and all their parts of the belly come as it were for supply. The sediment of the urine is grosse & viscid, and oft-times like the whites of eggs, which argueth the weakness of the native heate not aerating the juices. The patient looketh of a pale and yellowish complexion and hollow eyed, by reason of the almost continual watching which is caused by the butterneffe of paine; yet may it more certainly be knowne by putting in, or searching with a Cathater. Which to doe, the patient shall bee wilde to stand with his body somewhat stooping, leaning against somewhat with his backe, and holding his knees some foot further. Then the Cathater being bigger or leffer as the body shall require, and anointed with oyle or butter, shall bee thrust with a skilfull hand into the passage of the urine, and so into the capacity of the bladder. But if the Cathater cannot come to that capacity, the patient shall be placed in such a posture, then shall he be layd upon his backe on a bench, or the feet of a bed, with his knees bended, and his heales drawn to his buttocks, after which manner he must almoftlie when he is to be cut for the stone, as shall be shewn hereafter. For thus the Cathater is more easily thrust into the bladder, and shewes there is a stone by the meeting and obscure found of the obvious, hard and resitting body. You must have sundrie Cathaters, that they may serve for every body bigger and leffer, and these must be crooked, smooth and hollow. When being thrust into the ureinary passage (which before unawares I omitted) they come to the necke of the bladder, they must not be thrust stright into the bladder, but taking hold of the yard with the left hand, they must bee gently thrust with the right directly into the bladder, especially in men, by reason of the length and crookedneffe of the way, which trends in the forme of this letter S. It is not so in women by reason of the thornesse and straitneffe of the necke of the bladder. It is fit your Cathaters bee hollow or fistulous in manner of a pipe, that they may receive a silver wier or string, that may hinder the grosse and viscide humour, clotted bloody, or the like, from stopping the further end of the Cathater, through which the suppressed urine ought to passe & be made. But now asoon as we perceive that the Cathater is come into the capacity of the bladder, the wier must be drawn forth, that so the urine may the freeler flow out by the hollowneffe of the Cathater. You may perceive the shapes of these instruments by this following figure.

The figure of Cathaters, and of a silver string or wier.
How death may ensue by the suppreffion of the urine.

Why stones of the kidneys have sundry shapes.

Why men are more subject to the stone than women.
When the stone exceedeth the bigness of an egg, it can scarce be taken away without the tearing of the bladder, whence happeneth an unvoluntary shedding of the water, curable by no art, because the bladder, seeing it is nervous and without blood, being once torn admiteth no consolidation, and the rending of the bladder bring inevitable death. The patient runs the same hazard, if a long stone be pulled out sidewise with your instrument, or if it be included in a membrain (which kind of stone can scarce be found with a Catheter) and be fastened to the bladder, or otherwise if the stone itself be fastened into the substance of the bladder, or lastly if by any chance the Surgeon being about to pluck out the stone shall hurt the body of the bladder with his instrument. Yet stones of an indifferent bigness are more safely extracted out of the bladder than those which are left, and the patient more frequently and happily recovers. For they do not escape from the instrument, and the patient being used a long while to endure pain, as that which hath been a long time a growing, doth more easily and constantly away with the inflammation, paine and other symptoms, which happen after cutting, yea in cutting. Having thus spoken of the causes, signs, places, symptoms and prognosticks, we must come to the cure, beginning with that part which is termed Prophylaxis, that is, the preventing part.

Chap. XXXVII.

What diet is to be used when we fear the stone.

Let first be appointed, which by the convenient use of the fixe things not natural (as they term them) may heape up small store of grosse, tough and viscide humours in our bodies. Therefore cold and cloudy aire is to be shunned. They must abstaine from fish, beefe, porke, water-foule, pule, cheefe, milke meates, fryed and hard egges, rice, cakes and all pastry, unleavened bread, and lastly all manner of obstructing meats. Also garlike, onions, leeks, mustard, spices & lastly all things which overheat the blood and humors must be shunned, especially if you feare that the stone is concrete by the heat of the reins. Standing and muddy waters, thicke and troubled wines, beare, and such kind of liquors must be eschewed. Scurvy in meats and drinks is to be shunned, as that which breeds crudities. Also long watching and continual labour because they inflame the bloud, caufe crudities, and pretternatural heat must carefully be eschewed, as also all more vehement passions of the minde. If the body be pleutherick, then it must bee evacuated by phlebotomie, purging and vomiting, which is accounted for a singular remedy for the prevention of this diseafe. For the performance of all which things a Phyfician shall be consulted. But because Physicians are not in every place and alwaies at hand, I have thought good to set downe these following medicines: yet we must first remember this counsell of Galen, The use of diuretiques, and strong purging medicines is hurtfull, as often as there is inflammation in the reins and bladder, for so the conflude of the humors to the affected parts is the greater, whence the inflammation and paine are increas'd. Wherefore first using relaxing medicines, as fixe drams of Cassia newly drawne, with wifi. of Rubarbe in powder mixed therewith, then lenitive and refrigerating medicines shall bee inwardly and outwardly used, such as is this following syrupe.

\[
\begin{align*}
\text{R. \text{summita sumato \text{bismal. \& visolar. an. m. b. \text{rad. alth. si. glaucyr.} 35.4. fem. frigid. major. and. si. \text{fist decoctis.} R. \text{rad. decocionis 1b. 1b. in colatura dissolve fuch. albis. 35.}} } \\
\text{melan. albi \text{35.6. fist syrups secund.}} & \text{artem. let the patient use this often. This following apozeeme is also very effectual for the same peepe. R. \text{rad. alth. granum. polyt. querc. cini. paful. mund. an. 35. betonica. berniar. agrimen. omnium capill. \& pimpined. an. m. b. 4. fem. frigid. major. \& fem. summum. an. si. fist decoc. fist. 35. fist decoll. ad 1b. 1b. in colatura dissolve syrups de Althea \& de berniar. an. 35.}} \\
\text{Make a clere apozeeme and let it be aromatized with a little cinamon, for two doses; let him take the first doses in the morning two hours before meat, and the other at foure of the clock in the afternoone. More-} 
\end{align*}
\]
over this following broth hath an excellent and certain power to prevent the stone.

R. hortii integ., p. i. radice. petroselinii, accto. sem. umbelliferi, bruci. an. 3½, q. sem. frigidorum comministr. an. 3½. fol. acetos. portul. lactucae, summatis. tomato. malaev. & violar. an. m. h. bullani in aqua fluviatis cum gallio gallinarum & crere vivuline, let the broth bee kepe, and let the Patient take thereof six ounces for four days; in the morning two hours before meat, with an ounce of the juice of Citrons gently warmed with the same broth at the time of the taking thereof, so, thus, much urine will be made in a short while after, full of a fandy sediment and a grosse vileide humour. Whereby you may certainly gather that this kind of broth is very effectuall to cleanse the paffages of the urine, neither in the interrum, doth any harme to the stomack and other parts by which it paffeth: so that it may be rightly esteemed a medicinall nourishment. You may also profitably use this following powder. R. flori. melonii, meli. summatis. anth. herb. an. p. i. fr. decocito. ad lib. in colatura di. solvitur. ca. fistula. 3½, melius vol. & fr. rub. an. 3½. olei vol. 3½, fat. clyster. This which followeth is the first to attawge the paines. R. flo. Chamomill. summatis. anth. herb. an. p. i. fr. decocito. in lactu vacimo. in colatura di. solvitur. ca. fistula. & fr. rub. al. an. 3½, vel. hios ovarium num. i. olei. anth. & chaman. an. 3½, fat. clyster. In the interim let the kidneys bee annoynd on the outsid with unqentum of o. fr. refirgerans. Galen. and populeous fed severally, or mixed together, laying thereupon a double linnen cloth dipped in oxycrate. But if the concretion of the stone be of a cold caufe, the remedies must bee varied, as follows. R. terebinth. venet. 3½, cort. citri 3½, aq. co. 3½, fat. potio. Or else. R. cafsa vent. ex. tr. 3½, benedict. lax. 3½, aq. umb. 3½, ag. albar. 3½, fat. potio. let him take it three hours before dinner; this following a polime is also good. R. rad. cor. com, & ran. cornutus. an. 3½, bismal. con. 10. beton. an. m. 8. sem. milii fol. b. ad. an. 3½. sem. melonii. glycerii. rafan. 3½, fr. summum. aq. fr. decocito. ad. quart. iii. in expressa colatura. di. solvitur. fras. de capban. & oxymilitis. fistul. an. 3½. fr. rub. alb. 3½, fat. apo. me pro tribus. solvitur. clarestur. & aromati. cum. 3½. cinam. & 5. fat. citrin. let him take four ounces three hours before dinner. Or else. R. rad. petroselin. umb. 3½, fat. fr. pimp. ca. b. ad. an. 3½. sem. chamomill. & rad. an. 3½. fr. decocito. in colatura di. solvitur. ca. fistula. & fr. rub. r. fr. ap. me pro tribus. solvitur. clarestur. & aromati. cum. 3½. cinam. & 5. fat. citrin. Let it be taken at three dozes, two hours before meat. The following powder is very effectuall to di. solvitur. the matter of the stone. R. sem. petrosel. & rad. fistillum mundar. an 3½, sem. cardu. quem co. trim. r. vacant. 3, let them be dryned in an oven or stone with a gentle fire, afterwards let them be beaten severally and make a powder, whereof let the patient take 3½, or two scruples with white wine, or chicken broth fafting in the morning by the space of three daies. Or, R. coriand. prep. 3½, an. vinamar. galban. alka. miliis. folis. an. 3½. quint. & cinam. an. 3½. turbit. eleeti. 3½, car. 3½. galang. mici. moschat. & lapid. judicis an. 3½, fol. gent. mund. ad. duplum omni. di. solvitur. 3½, & fr. fat. potio. the dozis is about 3½ with white wine three hours before meate. Against the flanulences which much diffed the guts in this kind of diilafe, glitters shall be thus made: R. mal. bijmal. pariet. origami. colament. flo. chamam. summatis. anth. an. m. 8. anisi. carvi. cumini. fumic. an. 3½. baccar. laur. 3½. semin. rut. 3½. fat. decocito. in colatura di. solvitur. baccar. f. diaphanis. 3½, confec. fat. laur. 3½. fr. rub. 3½, olei. an. chaman. & rut. an. 3½. fat. clyster. Or, R. olei. cum. & vinii. man. 3½. aq. vina. 3½. fat. clyster. let it be kept long, that so it may have the more power to di. solvitur. the winde.
What is to be done, when the stone falleth out of the Kidney into the Ureter.

Sometimes it falleth out that the reines using their expulsive faculty, force down the stone (whole concretion and generation the Physicians by the formerly prefcribed means could not hinder) from themselves into the ureters; but it stayeth there either by reafon of the frightneffe of the place, or the debility of the expulsive faculty. Therefore then cruel pain torments the patient in that place whereas the stone sticketh, which alfo by confent may be communicated to the hippe, bladder, tefticles and yard, with a continuall desire to make water and goe to foole. In this case it behooveth the Physician that he supply the defect of nature, and affift the weake indeavours.

Therefore let the patient if he be able mount upon a trotting horfe, and ride upon him the space of some two miles, or if hee can have no opportunity to doe fo, then let him run up and downe a paire of faires until he be weary, and even sweat again; for the stone by this exercize is oft-times shaken into the bladder; then prefently shall be given or taken by the mouth such things as have a lentive and relaxing facultie, as oyle of sweet almonds newly drawne and that without fire, and mixed with the water of pellitorie of the wall and white wine. Let frictions of the whole body be made from above downwards with hot clothes; let Ventoies with a great flame be applyed one while to the loynes, and another while to the bottome of the belly, a little below the grieved place; and unlesfe the patient vomit of his owne accord, or by the bitterness of his paine, let vomiting bee procured with a draught of water and oile luke warme; for vomiting hath much force to drive downe the stone, by reafon of the comprefion of the parts, which is caufed by fuch an endeavours. laftly, if the stone descend not by the power of these remedies, then the patient muſt bee put into a Semencupium, that is, a Halfe-bath, made of the following decotion. Rec. melo, a. bifdorga. comito an. m. II. betan, faucfrae. herati. pavat. melo. am. III. semen. melonum. multis folis. alk, ebræi an. 3VI. cicer sub. 10, rad. app. gram. sanctuli. & cypiri an. III. in sufficienti quantitate aqua pro incoffam. coaquamos. etc. omn. in acies facto; wherein let the patient fir up to the navell; neither is it fit that the patient tarry longer in such a bath than is requisite, for the spirits are diffipated, and the powers resolved by too long stay therein. But on the contrary, if the patient remain as long as is sufficient in these rightly made, the paine is mitigated, the extended parts relaxed, and the passages of urine opened and dilated, and thus the stone descendeth into the bladder. But if it be not moved by this meanes any thing at all out of the place, and that the fame total suppression of urine do as yet remaine, neither before the patient entred into the bath the putting of a Catheter into the bladder did any thing availe, yet notwithstanding he shall try the fame againe after the patient is come out of the bath, that hee may bee throughly fatisified whether peradventure there may bee any other thing in thefe firft passages of the yard and neck of the bladder, which may with-hold the urine; for the Catheter will enter farre more easily, the parts being relaxed by the warmenesse of the bath; then inject fome oyle of sweet almonds with a fryinge into the Brethra, or passage of the yarde; whilst all thefe things are in doing, let not the patient come into the cold aire. But here I have thought good to decribe a chaire for a bath, wherein the patient may fitly fir.
Of divers pretentiously Affects

The figure of a chair for a Semicupium.

A. Sheweth the whole frame of the Chair.
B. The hole wherein the patient must sit.
C. The Cisterns that holds the water.
D. A Cocket to empty the water when it groweth cold.
E. A Funnell whereby to poure in warme water.

There may also be another decoction made for the bath, as thus: R. rad. repb., alth. an. B. ii. rad. rms. petrosel. & affarang an. B. i. cumin. fanicul. amos an. Ziiii. fem. lini. Sanct. an. Zvi. sel. marth. paratar. florum chamem. melil. anethi. an. m. ii. bulliant. omnis secundum artem in aqua sufficiens. & vini albi odorsi ex quo quantitate adeo sum pata pro Semicupio. Alfo the same decoction may be used for glitters, adding thereto two yolkes of eggs, and four ounces of oyle of lilies, with Zvi. oyle of Juniper, which hath a certaine force to affwage the paine of the stone and colick. But a farre lesse quantity of the decoction in a glittet must be used in these diseases, than usually is appointed in other diseases; otherwife there will be danger left the guts being distended should more preffe upon the kidneys and ureters, troubled in some sort with inflammation, and so increase the paine and other symptoms. This following cataplasm shall be profitably applied to the grieved place, to wit, the loynes or flanke and bottome of the belly, for it is very powerfull to affwage paine, and help forwards the falling downe of the stone. R. rad. alth. & raphani. Ziiii. pastis. fanic. senecioni. pastis. berula. an. m. i. berniatic. m. B. omnibus in casa sufficiens. decocet. & deinde contris. adeo 2 oz. aneth. chamem. & pingued. cuniculi. an. Zii. sa. riii. cicer. quantum sufficient. iste cataplasm ad usum praedictum. After these means the stone forced out of the ureter is fallen into the bladder, the paine presently (if there be but one stone, for sometimes more with much gravel do againe fall into the ureter) is mitigated, and then the patient is troubled with an itching and pricking at the end of his yard and fundament. Therefore then unleffe he bee very weake, it is fite that he ride and walk a foote, and take Ziv. of specis. Lithomtribow in four ounces, with white wine, or the broth of red Cicers three hours before dinner and supper. Besides, let him plentifully drink good wine, and after he hath drunke, let him hold in his
his urine as long as he can; that so it being gathered in greater plenty, it may presently thrust the stone out of the bladder with the more force: for which purpose you may also inject the following liquor into the bladder. 

\[ \text{R. syrapi capit, zen. } \text{Si. aqua akkeangi } \text{i. olei scorpiunm. } \]

Let this be injected into the bladder with a syringe.

**CHAP. XXXIX.**

What must be done the stone being fallen into the neck of the bladder, or passage of the yard.

After the stone is fallen out of the capacity of the bladder, and stops in the neck thereof, or passage of the yard, the Surgeon shall have a special care that he do not force or thrust back the stone from whence it came, but rather that he press gently with his fingers to the end of the yard, the passage being first made slippery by injecting some oyle of sweet almonds. But if it stop in the end of the claus, it must be plucked out with some crooked instrument, to which if it will not yield, a Gimblet with a pipe or case thereto, shall be put into the passage of the yard, and so it shall be gotten out, or else broken to pieces by the turning or twining about of the Gimblet, which I remember I have divers times attempted and done; for such Gimblets are made with sharper screwes, like ordinary Gimblets.

The delineation of a Gimblet made to brake the stones in the passage of the yard, together with its pipe, or case.

The effigies of another lesser Gimblet.

Verily what Gimblets soever are made for this business, their body nor point must bee no thicker than a small probe, left whilst they are forced or thrust into the urethra, or urinary passage, they might hurt the bodies next unto them by their violent entrance.

**CHAP. XL.**

What course must be taken, if the stone sticking in the urethra, or urinary passage, cannot be gotten out by the fore-mentioned arts.

But if the stone be more thicke, hard, rough and remote from the end of the yard, than that it may be gotten out by the meanes formerly mentioned in the precedent chapter, and if that the urine be wholly upprient therewith, then must you cut the yard upon the side with a straight wound: for you must not make incision on the upper part for feare of a flux of blood, for a large vein and artery lyeth thereunder; nor in the lower part,
Of divers préternatural Aésis. Lib. 17.

... for it would scarce ever heal again, for that it is a bloodless part, and besides, the continual and acrid falling of the urine would hinder the agglutination: wherefore the incision must be made on the side, on that part whereas the stone most refists and swells out. For that part is the more elastic; yet lest the end of the skin of the prepuce must be much drawn up to cover the Glans, which being done, the Urethra must be tied with a thread a little above the stone, that so the stone may be stayed there, and may not fall back again. Therefore then, incision being made, the stone must be taken forth, and the skin which was drawn more violently to cover the Glans is to be let goe backe againe; so for it will come to paffe that a whole part of the skin may cover the cut yard, and so it may be the more speedily united and the urine may naturally flow out. I have by this means oft-times taken forth the stone with the instriments here delineated.

Instruments fit to take the stone forth of the opened Urethra, or urinary passage of the yard.

Then for the agglutination, if need require, it will be requisite to few up the lips of the wound, and apply this agglutinative medicine following: R.  
S.  
G.  
F.  
F.  
S.  
S.  
S.  
S.

An agglutinative in dicere.

How to hasten the agglutination.

Then for the agglutination, if need require, it will be requisite to few up the lips of the wound, and apply this agglutinative medicine following.

Then for the agglutination, if need require, it will be requisite to few up the lips of the wound, and apply this agglutinative medicine following. R. sterch, sene, siu. gran, clem, 3i, sangu, draco, & must. an. 3i, fat medicamentum ut dicium est: then the whole yard must be covered over with a preparative medicine made of the whites of eggs, with the powder of bole armenick, aloes, farina, volatilia, and oyle of roses.

Lastly, it need so require, a waxe candle, or leaden string anointed with Venice turpentine shall be thrust into the Urethra to hasten the agglutination, and retaine the natural smoothneffe and stringe of the urinary passage, left peradventure a caruncle grow therein.

Chap. XLI.

What manner of section is to be made when a stone is in a boys bladder.

Itherto we have shewed, by what means it is convenient to draw small stones out of the ureter, bladder and passage of the urine; now will we briefly shew the manner of taking of greater stones out of the bladder, which is performed by incision and iron instruements, and I will deliver the practice thereof first in children, then in men, and lastily in women. First therefore let the Surgeon take the boy (upon whom it is determined the wooke shall be performed) under the arme holes, and so give him five or sixe shakkes, that so the stone may descend the more downwards to the neck of the bladder. Then must you cause a strong man sitting upon a high stool to lay the child upon his backe with his face from him ward, having his hips lying upon his knees. The child must lye somewhat high, that he may breathe the freer, & let not the nervous parts be too much stretched, but let all parts be loose and free for the drawing forth of the stone. Furthermore, it is fit that this strong man, the child's legs being bent backe, with the child, that putting his legs to his hams, that he draw them up as much as he can, & let the other be sure he keep them so for this site of the child much condu-
conduceth to well performing of the work. Then let the Surgeon thrust two of the fingers of his left hand as farre into the child's fundament as he is able; but let him with his other hand preffe the lower belly, first wrapping a cloth about his hand, that so the compression may be the lesse trouble some, and left inflammation should happen rather by this means than by the incision. Now the compression hath this use, to cause the stone descend out of the bottome of the bladder into the neck there of under the appute, whither after it is arrived, it must be there kept, & as it were governed by the command of your hand, left it should slide from that place whereeto you have brought it. These things thus done, nothing now remaineth, but that the Surgeon, with a wound some two fingers breadth distant from the fundament, cut through all the fleth even to the stone on the left side of the perinamus. But in the interim, let him beware that he hurt not the intestineum rellum, for it may, and usually doth happen, that whilst the stone is brought out of the bottome of the bladder to the neck thereof, this gut is doubled in: now if it bee cut with your incision knife, it commeth to paffe that the excrements may sometimes come out at the wound, and the urine by the fundament, which thing hath in many hindred the agglutination and conflaguration of the wound; yet in some others it hath done little harme, because in this tender age many things happen, which may seeme to exceed nature: the incision being made, the stone must bee plucked forth with the instrument here expressed.


The stone being drawne out, a small pipe shall be put into the wound, and there kept for some space after, for reasons hereafter to bee delivered; then his knees shall bee bound together, for thus the wound will the sooner close and bee agglutinated. The residue of the cure shall be performed by reducing the generall cure of wounds to the particular temper of the child's age, and the peculiar nature of the child in cure.


CHAP. XLII.

How to cut men for the taking out of the stone in the bladder.

Being we cannot otherwife helpe such men as have stones in their bladders, we must come to the extreme remedy, to wit, cutting. But the patient must first be purged, and if the case require, draw some blood: yet must you not immediately after this, or the day following hazte to the work, for the patient cannot but be weakened by purging & bleeding. Alfo it is expedient for some daies before to foment the privities with such things as relaxe and soften, that by their yeeling the stone may the more easely be extracted. Now the cure is thus to be performed. The patient shall be placed upon a firm table or bench with a cloth many times doubled under his buttocks; and a pillow under his lyones & back, so that he may lie halfe upright with his thighs lifted up, and his legs and heales drawn back to his buttocks. Then shall his feet be bound with a ligature of three fingers breadth cait about his ankles, and with the heads thereof being drawn upwards to his neck, and cast a
The patient thus bound, it is fit you have four strong men at hand; that is, two to hold his arms, and other two who may so firmly and straightly hold the knee with one hand, and the foot with the other, that he may neither move his limbs, nor stir his buttocks, but be forced to keep in the same posture with his whole body. Then the Surgeon shall thrust into the ureinary passage even to the bladder, a silver or iron and hollow probe, annointed with oyle, and opened on one side, that the point of the knife may enter thereinto, and that it may guide the hand of the workman, and keep the knife from piercing any farther into the bodies lying thereunto. The figure of this probe is here expreft.

Probes with slits in their ends.

He shall gently wrest the probe, being so thrust in, towards the left side, and also he who standeth on the patients right hand, shall with his left hand gently lift up his Cod, so in the free and open space of the left side of the perineum, the Surgeon may have the more liberty to make the incifion upon the probe which is thrust in, and turned that way. But in making this incifion, the Surgeon must be careful that he hurt not the seamc of the perineum and fundament. For if that seamc be cut, it will not be easily consolidated, for that it is callous and bloudcffe. Therefore the urine would continually drop forth this way. But if the wound be made too near the fundament, there is danger, lest by forcible plucking forth of the stone he may break some of the hemorhoides veins, whence a bleeding may ensue, which is scarce to be stopped.
flapped by any means, or that he may rend the bteoniter muscle, or body of the bladder, so that it can never be repaired. Therefore it must be made the space of two fingers from the fundament, according to the straightness of the fibres, that so it may be the more easily restored afterwards. Neither must the incision thus made exceed the bigness of one's thumb, for that it is afterwards enlarged by putting in the Crowes beake and the dilater, but more by the stone, as it is plucked forth. But that which is cut is neither so speedily nor easily healed up, as that which is torn. Then presently put into the wound some one of these silver instruments delineated here below, and called by the name of Guiders, for that they serve as guides to the other instruments which are to be put into the bladder; these are made with a round & prominent head, whereby it may be put into the described cavity of the probe, and they are noted by these letters A. A. then there are others marked with the letters B. B and called by the like name, and are to be put under the former, being made forked at the end, that so it may, as it were, embrace the end of the former.

The figures of Guiders of two sorts.

Now the probe is to be drawn forth, and the Guiders to be thrust and turned up and downe in the bladder, and at length to be stayed there by putting in the pin; yet such Guiders as want a pin are fitter for the hand, and are by some called pathe. Then must they be held between the Surgeon's fingers. It will be also necessary for the Surgeon to put another instrument called the Ducks bill between the two Guiders into the capacity of the bladder; hee must thrust it in somewhat violently, and dilate it so thrust in with both his hands, turning it every way to enlarge the wound as much as shall be sufficient for the admitting the other instruments which are to be put into the bladder; yet it is farre better for the patient, if that the wound may with this one instrument be sufficiently dilated, and the stone pulled forth with the same without the help of any other.
Which if you have not in a readinesse, and the largeness of the stone require more dilatation, then must you put in this Dilater, for being put into the bladder, and the handle pressed together, it will dilate the incision as much as you desire.

The wound by the helpe of this instrument being dilated as much as is sufficient, then put in the freight Ducks-bill before described, or the crooked here expressed.
Lib. 17. "if hope Cure is performed by Surgery.

Crooked Forceps like a Ducks-bill.

The stone may be f ought & taken hold of with these instruments, and being taken hold on, the branches of the instrument shall be tied together, left they should suffer that to slide away which they have once taken hold of. Neither shall the stone be suddenly plucked out, but easily shaken too & again, and at the length gently drawn forth. Yet you must beware that you do not press it too straightly in the forceps, left you should brake it in pieces: Some, left it should slip away, when they have once taken hold thereof, put their two fingers into the fundament, and put them above the stone that it may not fall out, nor slip back againe, which I thinke conduceth much to the easie extraction of the stone. There are others who strengthen this comprehenfion by putting in on each side above and below these winged instruments, so that the stone can slip forth on no side.

Winged instruments to hold the stone with the Ducks-beak.
The figure of another winged instrument, the end of whose handle is fastened by a screw, as also a bended iron plate which is marked with this letter A. for the former holding thereof.

After the stone is by these means drawn forth, observe diligently whether it be worn on any side, and as it were levigated; for that happeneth by the wearing or rubbing of one or more stones upon it; yet there is no surer way to know this, than by searching with a Catheter. The one end of the following instrument may supply the want of a Catheter or probe, and the other may serve for a Scoop or Cleaner.

A cleaner or scoop whereby you may search whether there be any more stones behind, as also cleanse or purge the bladder from gravel, clots of blood, and other such bodies, as use to remaine behind after the drawing forth of the stone.
Lib. 17. Whose Cure is performed by Surgery.

For if other stones remain behind, they shall be drawn forth as the former, which being done, the end of the instrument, which is crooked and hollowed like a scoop or spoon, shall be thrust by the wound into the bladder, and therewith you shall gather together and take out what gravel there was, elotted blood, and the like refuse as shall be there, for that they may yield matter for another stone. But if you find that the stone which is in the bladder be too great, so that it may not be plucked forth without great and fearfull rending of the bladder, it will be better to take hold thereof with this Crowes bill and so break it to pieces.

How to break a stone that cannot be taken out whole and at once.

The efficacy of a scoop'd Crowes bill made nearly to break greater stones, with a screw to force it together.

This Crowes bill hath only three teeth, and those sharpe ones on the inside, of which two are placed above, and one below, which is the middle most, for that it falls between the two upper. When the stone is broken, all the pieces thereof must be taken forth, and we must have a speciall care, lest any piece thereof lye hid; for that in time, increased by the accesse of a tough and viscous matter, or conjoynd with other fragments by the interposition of the like matter as glue, may rise to a stone of a large bignesse.

CHAP. XLIII.

What cure must be used to the wound when the stone is taken forth.

The stone being drawn out, if the greatness of the wound so require, it shall have one or two stitches with a needle and thred, leaving only to much space as shall be sufficient to put in a pipe for the use. We shall hereafter shew, your thread must be of crimson flie waxed, and let it not be too small, lest it by binding should cut aunder the fleshly lips of the wound, or rot in a short time, either by the moisture of the urine, or matter flowing from the ulcer. Therefore you shall take up much flesh with the skin in sewing it, left the lips of the wound being torn, your labour prove in vaine, and so you are forced to trouble the patient with making a new one. Things being thus performed, a silver pipe shall be put through the wound into the bladder, whereof I have here given you divers forms, that you may take your choice, and so fit them to the wounds, and not the wounds to
Of divers preternatural Affects.

to them, which oft-times in want of instruments the Surgeons are forced to doe, to the great harme of the patient.

Silver pipes to be put into the bladder when the stone is drawn out.

These must have no holes in their sides (as those here expressed) but only in their ends, that all the matter of the wound, and the filth gathered and concrete in the bladder may flow and bee carried forth this way. When cleere urine shall beginne to flow out of the wound, there shall be no more need of a pipe; therefore if you continue it, & keep it longer in the wound, there is some danger left nature accustomed to that way, may afterwards neglect to send the water through the Urethra, or ureinary passage. Neither must you forget to defend the parts near to the wound with the following repercussive medicine, to hinder the defluxion and inflammation, which are incident by reason of the pains. Rx. album, wurtum, nux, pil. bols armesi, ganguinis dracon. as. iiiii. olei vas. iii. pilorum leperiorum quantum sufficit, make a medicine of the consistence of honey.

Chap. XLIV.

How to lay the patient after the stone is taken away.

Remedies for the Cod, left it gangrenatc.

ILL those things which we have recited being faithfully and diligently performed, the patient shall be placed in his bed, laying under him as it were a pillow filled with bran, or oat chaffe, to drink up the urine which oweth from him. You must have divers of these pillows, that they may be changed as neede shall require. Sometimes after the drawing forth of the stone, the bloud in great quantity falleth into the Cod, which unless you be careful to provide againft, with dispersing, drying, and consuming medicines, it is to be feared, that it may gangrenate. Wherefore if any accidents happen in curing these kinds of wounds, you must diligently withstand them. After some few daies a warme injection shall be cast into the bladder by the wound, consisting of the waters of plantain, nightshade & roses, with a little syrupe of dried roses. It will help to temper the heat of the bladder caufed both by the wound and contusion, as also by the violent thrusting in of the instruments. Also it sometimes happens, that after the drawing forth of the stone, clots of bloud and other impurity may fall into the ureinary passage, and so stop the urine that it cannot flow forth. Therefore you must in like fort put a hollow probe for some daies into the urethra, that keeping the passage open, all the groffer filth may flow out together with the urine.

Chap. XLV.

How to cure the wound made by the incision.

What things holde the union.

Ou must cure this wound after the manner of other bloody wounds, to wit, by agglutination and cicatrization, the filth, or such things as may hinder, being taken away by detergent medicines. The patient shall haften the agglutination if hee lye crofte-legged, and keep a flender diet untill the seuenth or ninth day be past. Hee must wholly abstaine from wine,
wine, unless it be very weak; in stead thereof let him use a decoction of barley and licorith, or mead, or water and sugar, or boyled water mixed with syrups of dryed roses, maidenhair, and the like. Let his meat bee ponado, raifons, stewed prunes, chickens boiled, with the cold feeds, lettuce, purflaine, forrell, borage, spinage, and the like. If he be bound in his belly, a Physitian shall be called, who may helpe it, by appointing either Caffia, a glister, or some other kind of medicine, as he shall thinke good.

**Chap. XLVI.**

What cure is to be used to Ulcers, when as the urine flowes through them, long after the stone is drawn out.

Any after the stone is drawne out, cannot have the ulcer consolidated, therefore the urine flowes out this way continually by little and little, and against the patients will during the rest of his life, unless the Surgeon helpe it. Therefore the callous lippes of the wound must be amputated, so to make a green wound of an old ulcer; then must they bee tyed up, and bound with the instrument wee terme a Retinaculum or stay, this must be perforated with three holes, answering to three other on the other side, needles shall be thrust through these holes, taking hold of much flesh, and shall be knit about it: then glutinative medicines shall be applyed, such as are Venice Turpentine, Gum Elami, Fagum Draconis, bote armenick, and the like, after five or sixe dayes the needles shall bee taken out, and alio the stay taken away. For then you shall finde the wound almost g clawd, and there will nothing remaine but onely to cicatrize it.

The figure of a Retinaculum or stay.

A. shews the greater, B. the lesser, that you may know that you must use divers according to the different bignesse of the wound.

If a Retinaculum or stay be wanting, you may conjoyne the lippes of the wound after this following manner. Put two quilles somewhat longer than the wound, on each side one, and then presently thrust them through with needles having thread in them, taking hold of the flesh between, as often as need shall require, then tying the thread upon them. For thus the wound shall be agglutinated, and the fleshly lips of the wound kepe from being torn, which would be in danger if the needle & thread were onely used.
Chap. XLVII.

How to take stones out of women's bladders.

To know by the same signs that the stone is in a woman's bladder as we do in a man, yet it is far more easily searched by a Catheter, for that the neck of the bladder in the shorter, broader, and the more ftreight. Wherefore it may not only be found by a Catheter put into the bladder, but also by the fingers thurft into the necke of the womb, turning them up towards the inner side of the Os pubis, and placing the fickle woman in the fame posture as we menti¬
oned in the cure of men. Yet you must obfervc that maides youn¬
ger than seven years old, that are troubled with the stone, cannot bee searched by the neck of the wombe, without great violence. Therefore the stone must be drawnne from them by the fame meanes as from boyes, to wit, by thurfting the fingers into the fundament, for thus the stone being found out, and the lower belly also pressed with the other hand, it must be brought to the necke of the blad¬der, and then drawn forth by the forementioned meanes. Yet if the riper yeares of the patient permit it to bee done without violence, the whole worke shall be more easily and happily performed, by putting the fingers into the necke of the wombe, for that the bladder is nearer the necke of the womb, than it is to the right gut. Where¬fore the fingers thurft in, a Catheter shall bee prefently put into the necke of the bladder. This Catheter must bee hollow, or slit on the outside like those before described, but not crooked, but ftreight, as you may perceiue by the following figure.

A Catheter, upon which, being put into the Bladder, the necke thereof may be cut, to draw out a stone from a woman.

Upon this inftrument the neck of the bladder may be cut, and then with the Di¬
later made for the fame purpofe, the incifion shall bee dilated as much as need re¬
quires; yet with this caution, that Seeing the neck of a woman's bladder is the shorter, it admits not fo great dilatation as a mans, for otherwife there is danger that it may come to the body of the bladder, whence an unvoluntary shedding of the wa¬
ter may enflue and continue thereafter. The incifion being dilated, the Surgeon putting one or two of his fingers into the necke of the wombe, shall preffe the bot¬
tome of the bladder, and then thurft his crooked inftruments or forci¬
ipers in by the wound, and with thefe he shall eafily pull out the stone, which he shall keep with his fingers from flipping back againe. Yet Laurence Collo the Kings Surgeon, and both his fannes (than whom I doe not know whether ever there were better cutters for the stone) doe otherwife performe this operation; for they doe not thurft their fingers into the fundament or necke of the wombe, but containing themselves with putting in onely the Guiders (whereof we formerly made mention) into the paffage of the urine, they prefently thereupon make a ftreight incifion direcly at the mouth of the neck of the bladder, and not on the fide, as is usually done in men. Then they genely by the fame way thurft the forci¬
iper hallowed on the outfide formerly deline¬
ated, and do dilate the wound by tearing it as much as shall be sufficient for the draw¬
ing of the stone forth of the bladder. The residue of the cure is the fame with that formerly mentioned in men; yet this is to be added, that if an ulcer grow in the neck of the bladder by reafon of the rending it, you may by putting in the pecusulum materni¬
cis, dilate the neck of the womb, that fitting remedies may be applied with the more cale.

Chap.
Chap. XLVIII.

Of the Suppression of the Urine by internal causes.

Evidently the forrementioned causes of suppressed urine, or difficulty of making of water, there are many other, left any may think that the urine is stopp'd onely by the stone or gravel, as Surgeons thinke, who in this case pretend of diuretics. Therefore the urine is suppressed by external and internal causes. The internal causes are clotted blood, phlegme, warts, cartucles breed in the passage of the urine, stones, and grew. The external causes are sometimes suppressed, because the matter that is, to wit, the stones or where the blood part of the blood, is either conformed by the fece, or heat, of the urine and the stomach heat, or causing the urine to be suppressed by clotted blood, sometimes also the flatulence there contained, or inflammation arising in the parts made for the urine and the following membris, suppresses the urine. For the right gout if it be inflamed, intercepts the passage of the urine, either by a tumour whereby it presses upon the bladder, or by the communication of the inflammation. Thus by the default of an ill affected liver, the urine is oftentimes suppressed in such as have the stone, or else by dulness or decay of the attractive, or reparative faculty of the reins by some great distemper, or by the default of the animal faculty, as in such as are in a phrene, leathagy, convulsion, apoplexie. Besides also a tough and viscid humour falling from the whole body into the passages of the urine, obstructs and shuts up the passage. Also too long holding the water oftentimes causes this accident. For when the bladder is distended above measure, the passage thereof is drawn together and made more strict; hereto may be added that the too great distention of the bladder is a hindrance that it cannot use the expansive faculty, and straighten it selfe about the urine to expel it: here also paine succeeds, which presently dejects all the faculties of the part which it seizeth upon. Thus of late a certain young man, riding on horsebacke before his Mistrefse, and therefore not daring to make water, when he had great need to doe, had his urine so suppressed that returning from his journey home into the city, he could by no means possible make water. In the same time he had grievous paine in the bottom of his belly and the perineum, with gripings and a sweat all over his body, so that he almost fownd. I being called, when I had procured him to make water by putting in a hollow Catheter, and preffing the bottom of his belly, whereof he forthwith made two pints, I told them that it was not occasioned by the stone, which notwithstanding the standers by imagined to bee the occaftion of that suppression of urine. For thence forward there appeared no signes of the stone in the youth, neither was he afterwards troubled with the stopping of his urine.

Chap. XLIX.

A digression concerning the purging of such things as are unprofitable in the whole body by the urine.

Think it not amiss to tell you by the following histories, the providence of nature in expelling by urine such things as are unprofitable in the whole body. Monsieur Sarre the Kings secretary was wounded in the right arm with a pitoll bullet, many and maligne symptomes happened thereupon, but principally great inflammations, flowing with much pains and pus or quittance: it oftentimes happened that without any reason this purulent and faydy effusse of matter was stayd in the inflammation; whereof while we sollicuously enquired into the cause, wee found both his stooles and water commixed with much purulent filth, and this through the whole course of the disease, whereof notwithstanding the standers by imagined to bee the occasion of that suppression of urine. For thence forward there appeared no signes of the stone in the youth, neither was he afterwards troubled with the stopping of his urine.
ved that as long as his arm flowed with this filthy matter, so long were his excrements of the belly and bladder free from the fanious and purulent matter: as long on the contrary as the ulcers of the arm were dry, so long were the excrements of the guts and bladder fanious and purulent. The same accident befell a Gentleman called Monsieur de la Croix, who received a deadly wound in a sword on the left arm, though German Chevally, and Master Raffi expert Surgeons, and others, who together with me had him in cure, thought it was not so for this reason, because the pus cannot run long a way in the body, neither if it were so, could that bee done without the infection and corruption of the whole maffe of blood, whilest it floweth through the veins: therefore to be more probable that this quantity of filthy, mixed with excrements and urine, flowed by reason of the default of the liver, or of some other bowells, rather than from the wounded arm: I was of a contrary opinion on these following reasons. First for that which was apparently seen in the patient: for as long as the excrement and urine were free from this purulent matter, so long his arm plentifully flowed therewith; this on the contrary being dry, much purulent matter was voided both by stoole and urine. Another was, that as our whole body is perfpirable, so it is also (if I may so terme it) conflitious. The third was an example taken from the glasses which the French terme Monte-vins, that is, Mountain-wines; for if a glasse that is full of wine be fet under another that is full'd with water, you may see the wine raise it selfe out of the lower vessel to the upper through the midft of the water, & so the water descend through the midft of the wine, yet so, that they do not mixe themselves, but the one take & possefs the place of the other. If this may be done by art, by things only naturall, & to be discerned by our eyes, what may be done in our bodies, in which by reason of the presence of a more noble suble, all the works of nature are far more perfed.? What is it which we may depair to be done in the like case? For doth not the laudible blood flow to the guts, kidneycs, spleen, bladder of the gall, by the impulfe of nature together with the excrements, which presently the parts themselues separate from their nutriment? Doth not milke from the breasts flow sometimes forth of the wombes of women lately delivered? Yet that cannot bee carried downe thither, unlefe by the passages of the Mari-tides, which meete th' mouthes of the vessels of the womb in the middle of the ftreit muscles of the Epigastrium. Therefore no marvail if according to Galen the pus unmixt with the blood flowing from the whole body by the veins and arteryes into the kidneycs and bladder, bee cast forth together with the urine. Thence and the like things are done by nature, not taught by any counsell or reason, but onely inhabited by the strength of the segregating and expulsive faculty, and certainly we presently discoeting the dead body, obersved that it all, as also all the bowells thereof, were free from inflammation and ulceration, neither was there any signe or impreffion of any purulent matter in any part thereof.

**CHAP. L.**

By what external causes the urine is suppressit; and prognostickes concerning the suppression thereof.

Here are allo many external causes, through whose occasion the urine may be suppressit. Such are bathing and swimming in cold water; the too long continued application of Narcotick medicines upon the Reines, perinaum and ilare; the use of cold meat and drinckes, and such other like. Moreover, the dislocation of some Vertebrae or the loines to the infide, for that it preffeth the nerves disseminated thence into the bladder, therefore it causeth a fluidity or nunmelle of the bladder. Whence it is, that it cannot perceive it selfe to bee vellicated by the acrimony of the urine, and consequently it is not stirred up to the expulsion thereof. But from whatsoever cause the suppression of the urine procedis, if it keepe for some dayes, death is to bee feared, unlefe either a fever, which may consume the matter of the urine, or a sourour of fluxe, which may divert it, shall happen thereupon. For thus by stay it acquireth an acride and venerate
Lib. 17. 

Some pure blood, others mixt, and that either with urine, and then the difference is expell'd resembles the fwalling of flesh newly killed, or else with pus, or matter, and that either alone or mixed with the urine.

There may be divers causes of this symptom, as the too great quantity of blood gathered in the body, by which the suppreffion of the accustomed &periodical evacuation, by the court's of hemorhoids, now turns its court to the reins &bladder; the fretting of a fider of fome vell as by an acrid humour, or the breaking thereof by carrying or lifting of fome heavy burden, by leaping, falling from high, a great blow, the falling of fome wait upon the loins, riding poif too violently, the too immoderate use of venery, & laftly, from any kind of painful & more violent exercise, by a rough & sharp stone in the kidneys, by the weakneffe of the retentive faculty of the kidneys, by a wound of fome of the parts belonging to the urine, by the too frequent use of diuretike & hot meats and medicines, or else of things in their whole nature contrary to the urinary parts, for by these and the like causes, the reins are oft times fo enfamed, that they neceffarily impoffume, and at length the impofume being broken it turns into an ulcer, cafting forth quittance by the urine. In fo great variety of the causes of bloody urine, we may gather whence the caufes of this symptom may arife, by the depraved action of this, or that part, by the condition of the flowing blood, to wit, pure or mixt, and that either with the urine alone, or with pus. For example, if this bloody matter flow from the lungs, liver, kidneys, dislocat'd Vertebras, the freight gut, or other the like part: you may difcrine it by the feat of the paine and symptomes, as a feaver; and the propriety of the paine, and other things which have preceded, or are yet preffent. And we may gather the fame by the plenty and quality, for if, for example, the pus flow from an ulcer of the arm, the purulent matter will flow by turnes, one while by the urine, fo that little is caft forth by the ulcer; then prefently on the contrary the urine becomes more cleere. That purulent matter which flows from the lungs by reafon of an Empyema, or from the liver, or any other bowell placed above the midrifte, the pus which is caft forth with the urine, is both in greater plenty and more exactly mixed with the urine, than that which flows from the kidneys and bladder. It neither belongs to our purpose, nor a Surgeons office, either to undertake, or deliver the cure of this affeét. It shall suff: cuftic only to note that the cure of this symptom is not to bee hoped for fo long as the caufes remains. And if this blood flow by the opening of a vell, it shall bee stayed by astringent medicines; if broken, by agglutinative; if corroded or fretted at the fide, by farcofick.
Of divers preternaturall Affects, Lib. 17.

CHAP. LII.

Of the signes of ulcerated Kidneys.

Had not determined to follow or particularly handle the causes of bloody urines, yet because that which is occasioned by the ulcerated reines or bladder more frequently happens, therefore I have thought good briefly to speake thereof in this place. The signes of an ulcer of the reines are, pain in the loines, matter howsoever mixt with the urine, never evacuated by it selfe, but alwayes flowing forth with the urine, and refinding in the bottome of the chamberpot, with a fannonous and redde sediment, fleshy and as it were bloody fibres swimming up and downe in the urine, the smell of the filth is not so great as that which flowes from the ulcerated bladder, for that the kidneyes, seeing they are of a fleshy substance, doe farre better ripen and digest the purulent matter than the bladder which is nervous and bloodlefe.

CHAP. LIII.

Of the signes of the ulcerated Bladder.

Differencs.

LCERS are in the bottome of the bladder and the neckethereof. The signes of an ulcer in the bladder are, a deeppe paine at the flaterbones; the great flux of the matter flowing therefrom; white and thin skins swimming up and downe in the water. But when the ulcer possesth the necke of the bladder, the paine is more gentle, neither doth it trouble before the patient come to make water, but in the very making thereof, and a little while after.

But it is common both to the one and the other, that the yard is extended in making of water, to wit, by reason of the paine caused by the urine fretting of the ulcerated part in the passage by: neither is the matter seen mixed with the urine, as is usual in an ulcer of the upper parts, because it is powred forth not together with the urine, but after it.

CHAP. LIV.

Prognosticks of the ulcerated Reines and Bladder.

Why ulcers of the bladder are more difficult to be cured than those of the bladder: for fleshy parts more speedily heale and knit, than bloodlefe and nervous parts. Ulcers which are in the top of the bladder, are uncureable, or certainly most difficult to heale, for besides that they are in a bloodlefe part, they are daily vellicated and exasperated by the continuall afflution of the contained urine, for all the urine is never evacuated: now that which remains after making water, becomes more aride by the distemper and heat of the part, for that the bladder is alwaies gathered about it, & dilated & strained according to the quantity of the contained urine: therefore in the feborria, that is, the apprehension or difficulty of making water, you may oftentimes see a quart of water made at once. Those which have their legs fall away, having an ulcer in their bladder, are near their deaths. Ulcers arising in these parts, unlesse they be conosolidated in a short time, remaine uncureable.
N curing the suppresion of the urine, the indication must be taken from the nature of the disease, and cause thereof, if it bee yet present or not.

But the diversity of the parts, by which being hurt, the siccauria happens, intimates the variety of medicines, neither must we presently run to diuretikes, and things breaking the stone, which many Empiricks doe. For hence grievous and maleigne symptoms often arise, especially if this suppresion proceed from an acrid humeur, or blood pressed out by a bruife, immo.


derate venery, and all more vehement exercisef, a hot and acride potion, as of Cantharides, by too long abating from making water, by a Phlegmon, or ulcer of the urinary parts. For thus the paine and inflammation are encreated, whence follows a gangrene, & at length death. Wherefore attempt nothing in this case without the advice of a Physician, no not when you must come to Surgery. For diuretikes can scarce have place in another case, than when the urinary passages are obstructed by gravel, or a groffe and vilide humeur, or else in some cold country, or in the application of Narcoticks to the loines, although we must not here use these before we have first made use of general medicines: now Diuretikes may be administered fundry waters, as hereafter shall appeare.

R. agrimon, utric. parietar, uscanthar. rubros habentur, an. m. i. rad. aparg. mundas, iiii, gran. alkenegeti, su. xx. sen. mali, zhi. rad. acer. 3, bullianis omnia simili in saxi liqui aqua dulcis ad tertiam, dein unde coletur. Let the patient take 3 iii. hereof with 3 li. of sugar candy, and drink it warme fasting in a morning, three hours before meat. Thirty or forty Jvie berries beaten in white wine, and given the patient to drink some two hours before meat, are good for the same purpose. Alfo 3 i. of nettle seeds made into fine pouder and drunk in chicken broth, is good for the same purpose. A decoction alfo of Grummell, Goats faxibrage, pellitory of the wall, white faxibrage, the rootes of parfley, apargus, accurus, brusseus, and orris drunk in the quantity of some three or foure ounces, is profitable alfo for the fame purpose. Yet this following water is commended above the rest to provoke urine, & open the passages thereof, from what cause soever the stoppage thereof proceed. R. radix, of mund, regalis, 3. b. A diuretike bismal, gram. perchol, fiam, an. lui. rob, crasire, intalo cl. iii. maceratur per noctem in b. acquo.

aceto allo accurrino, bullianti foce in aqua fluoideal. b. x. faxibrage, cr. mar. rub. xiii, millis folis, fummitas, malus, bismal, an. p. lii. bern. cicer. rub. an. p. i. sem. meloni, cir. r, an. iii. 3. alkenegeti, gra. xx. glycyrrhi, 3. i, bullianti omnia simul ad tertiam in cola. tora infundt, per noctem, fol. oriental, li. 8, fias iterum per noctem collabito, in expressio necolata infunde cinam. elc. 5 vi. coletur; iterum colaturre in alicrimun vitream, foceo tergo, venes, lucid. lii. ag. vitr. 3 vi. ag. testurum omnia simul diligens. fime. Inulce telemicium lato lapte, fias destillatolento igne in balneum maris. Ufe it after the following manner. R. ag. filatissia prescripta 3 ii. aut iii. According to the operation which it shall performe, let the patient take it foure hours before meat. Alfo reddish water destilled in balneo maris is given in the quantity of 3 iii., with fugar, and that with good successe. Bathes and semicupia, or halfe bathes artificially made, relaxe, foften, dilate, and open all the body; therefore the prescribed diuretikes mixed with halfe a dram of Treacle may be fittily given at the going forth of the bath. These medicines following are judged fitt to cleanse the ulcers of the kidneys and bladder. Syrupe of maiden-hair, of roces, taken in the quantity of 3 li. with hydromel, or barley water: Alfo or Goats milke are alfo much commended in this affection, because they cleanse the ulcers by their fersous or whaythm portion, and aglutinate by their cheefelike. They must bee taken warme from the duggle, with honey of roces or a little falt, left they corrupt in the stomacke; and to the quantity of four ounces, drinking or eating nothing prefently upon it. The following Trochifces are alfo good for the fame purpose. R. quatuor fem. frigidum, major. femina pappaveria alba, portulac, planlag, cydon, myrril, gum. tragacanthi, et arnh. piner. M mm 3

glycyrrhi.
Chap. LVI.

Of the Diabete, or inability to hold the urine.

**What Diabete is.**

Diabete is a disease, wherein presently after one hath drunk, the urine is presently made in great plenty, by the dissolution of the retentive faculty of the reins, and the deprivation of immoderation of the attractive faculty. The external causes are the unreasonable use of hot and diureticke things, and all more violent and vehement exercises. The internal causes are the inflammation of the liver, lungs, spleen, but especially of the kidneys and bladder. This affection must be diligently distinguished from the action of morbid sick causes by urine. The most of them are coloured with a pricking and biting pain, and there is a continual unquenchable thirst: and although this disease proceed from a hot temperament, yet the urine is not coloured, red, troubled, or thick, but thin, and white or waterish, by reason the matter thereof makes very small stay in the stomach, liver and bowels; whereupon it is suddenly drawn away by the heat of the kidneys or bladder. If the affection be long endur'd, the patient for want of nourishment falleth away, whence certain death ensues.

For the cure of so great a disease, the matter must be purged, which causes or fedes the inflammation or phlegmon, and consequently blood must be let. We must abstain from the four cold foods, for although they may profit by their first quality, yet will they hurt by their diuretik faculty. Refrigerating and astringent nourishments must be used, and such as generate grosse humours, as Rice, thick and astringent wine mixed with much water. Exceeding cold, yea Narcoticke things shall be applied to the loins, for otherwise by reason of the thinness of the muscles of those parts, the force, unless of exceeding refrigerating things, will not be able to arrive at the reins, of this kind are oile of white poppy, henbane, opium, purgall, and lettuce seed, mandrage vinegar, and the like: of which, cataplasmes, plaitures, and ointments, may be made, fit to corroboreate the parts, and correct the heat.

Chap. LVII.

Of the Strangury.

**What the Strangury is.**

Strangury is an afeft having some affinity with the Diabete, as that wherein the water is unvoluntarily made, but not together at once, but by drops, continually and with paine. The external causes of a strangury are, the too abundant drinking of cold water, & all too long stay in a cold place. The internal causes are, the defluxion of cold humour into the urinary parts, for hence they are resolv'd by a certain palpke, and the [shudder] of the bladder is relaxed, so that he cannot hold his water according to his desire: inflammation also & all diatempur causeth this affection, and whatsoever in some sort obstructs the passage of the urine, as clotted blood, thick phlegme, gravel, and the like. And because, according to Galen's opinion, all sorts of diatempur may causeth this disease, divers medicines...
L 1817. whose Cure is performed by Surgery.

Chap. LVIII. of the Cholihe.

Hensoever the Guts being obstruied, or otherwife affected, the excrements are hindered from passing forth, & if the fault bee in the small guts, the affed is termed *Peculum, Ileus,* & misserere me; but if it be in the greate guts, it is called the Cholick, from the part affected, which is the *Colon,* that is, the continuity of the greater guts; but efcially that portion of the greater guts, which is properly and efcially named *Golen,* or the cholicke Gut. Therefore *Avicein* rightly defines the Cholicke, A paine of the Guts wherein the excrements are difficulitly evacuated by the fundament. *Pannus Aeguiner* reduceth all the caufes of the Cholicke how various foever to foure heads, to wit, to the *gresonefle,* or toughneffe of the humoures impad in the coats of the guts: flatulencies hindered from piflage forth: the inflammation of the guts: and laftly, the collection of acride and biting humoures. Now we will treat of each of these in particular. Almoft the fame caufes produce the grossenefle of humoures, and flatulencies in the guts, to wit, the ufe of flatulent, and phlegmaticke, tough, and viſcid meats, yea alfo of fuch as are of good nourifhmcnt, if sundry thereof, and of sundry kinds be eaten at the fame meal, and in greater quantity than is fit. For hence crudity and obftrution, and at length the collection of flatulencies, whereon atenfive paine enflues. This kind of Cholick is alfo caufed by the ufe of crudefruits, and too cold drinck, drunken efcially when as any is too hot by exercife, or any other wyfe: for thus the stomachke and the guts continued thereto, are refrigerated, and the humoures and excrements therein contained are congealed, and, as it were, bound up. The Cholicke which is caufed by the inflammation of the kidneyes, happens by the Sympathy of the reins painted or troubled with the stone or gravel contained in them or the ureters. Therefore then also pa因e troubles the patient athis hips and loynes, because the nerves, which arifing from the *vertebrae* of the loines, are opprefled by the weight of the stones and gravel, about the joint of the hippe: are diftempered into the muscles of the loines and thigh. Alfo the ureters are painted (for they feeme nothing else but certaine hollow nerves) and alfo the cremafe and muscules, fo that the patients tendicles may feeme to be drawne upwards with much violence. Hence great, phlegmaticke, and cholericke vomiting, and fweat of the whole body, all which doe not furrcate before that the stone, or gravel shall bee forced downe into the bladder. Now vomiting happens in this affed, for that the ventricule by reafon of its continuity and neigbourhood which it hath with the guts, sufferers by contene and sympathy. For the stomacke is of the fame kind or matter as the guts are, fo that the guts feeme nothing else but a certaine production of the stomacke. Therefore itat any time nature endeavoure to expell any thing that is troublesome in the kidneyes, ureters, coats of the guts, melencory, *pancreas,* and hypochondryes, it caueth a Colicke with pain and vomiting. A hot and dry diftempere also caueth the Colicke, producing a prick-
And biting paine by drying the excrements shut up in the guts, as also by waiting as it were the radical humour of that place provided for the lubricating of the guts.

Acrid, viscid, and tough phlegme causeth the same. There is also another cause of the Collick which is not so common, to wit, the twining of the guts, that is, when they are so twined, folded, and doubled, that the excrements, as it were, bound in their knots, cannot be expelled, as it manifestly happens in the rupture called Enterocoele, by the falling of the guts into the cod. Likewise also worms generated in the Collick Gut, whilst they mutually fold or twine themselves up, do also twine the Colon it selfe and fold it with them. Also the too long stay of the excrements in the guts, whether it shall happen by the peculiar default of the too hot and dry body of the patient, or by his diet, that is, the use of too dry meats, or exercifes and pains taken in the heat of the sunne, or by the greasiness of butter and cheese, the minds being carried away, causeth the Collick, with headache, and plenty of vapours flying upwards.

I remember I once disected the body of a boy of some twelve yeares old, who had his guts folded with many as it were eyes or knots, of the refrained, too hard and dry excrements, the which he calle out by his mouth a little before his death, which brought him to his end, being not helped in time by fitting medicines. Now these are the causes of the Collick, according to the opinion of the ancient and modern Physicians, of whose signes I judge it not amisse here to treat in particular. You shall know that the patient is troubled with the stone collick by the paine which is fixed and as it were kept in one place, to wit, of the kidneys, by his former manner of life, as, if the patient hath formerly voided stones or gravel together with his urine, by the paine of the hips and tefticles for the formerly mentioned causes, & lastly, by that the patient suffers forth by foole or urine, for that the great & laborious endeavours of nature to cast forth the stone which is in the kidneys, is propagated by a certain sympathy, & like study of the neighboring parts stirring up the expulsive faculties each to his work. The signes of a flatulent collick are, a tenfivc pain, such as if the guts were rent or tore in pieces, together with a noise or rumbling in the belly. The force of the shut up wind is sometimes so great, that it rendeth or tareth the guts in funder, no otherwise than a swines bladder too hard blown up. Which when it happens, the patient discharges with much vomiting, because the stone oppressed with wind, can containe nor imbace no meat. The collick which is occasioned by the too long keeping in of the excrements, is accompanied with the weight and pain of the belly, the tension of the guts, headache, apparent hardnes of the belly, & the complaint of the patient that he hath not gone to stool in a long time. That which proceeds from a choleric inflammation, yelds a sense of great heat & pulsation in the midst of the belly, by reason of the veins and arteries which are in the pancreas and coats of the guts, and there are the other signes of a Phlegman, although all as this it were inflammation may arise also from falt, acrid & viscid phlegme, which nature can neither expel upwards by vomit, nor downwards by stool, this sundry times is associated with a difficulty of making water, for that when as the right gut is inflamed the bladder is pressed by reason of their society or neighbourhould. The collick which proceeds from the contortion of the guts shews itself by the excessive cruelty of the paine, aristing for that the guts are not in their due site and place, and because the excrements by their too long detenion acquire a preternatural heat; & this is the cause of the death of many such as have Ruptures, for that the gut falling down from the natural place into the Cod, being a preternatural place, is redoubled & kept there as it were bound, whereby the excrements being backed becoming more acridly hot cause inflammation, and by raising up flatuencies encreafe the diffusion through all the guts, untill at length a deadly Hicou or collick arising, they come forth at the mouth. For prognostickers, it is better to have the paine in the collick to wander up and down, than to be fixed, it is good also that the excrements are not wholly suppreft. But the evil signes that here appeare pronounce the affife either difficult or deadly. Now these shew that it is deadly, intolerable tormenting paine, continual vomiting, cold sweate, cold neffe of the extreme parts, hickering by reason of the symmetry the stomack hath with the guts, a Phrenifie by the consent of the braine with the stomacke, and oft times a...
convulsion by drawing the matter into the nerves. But such as have gripping and pain about their navil and loines, which can neither be helped by medicine nor otherwise, it ends in a Dropie. The cure must be diversifled according to the variety of the cau-

fes, for the stone collick is cured by medicines proper to the stone; that which is caused by an Enterocele, is cured by the only relieving the gut to its place; that which is occasioned by worms, requires medicines fit to kill and cast forth the worms. But that which proceeds from the weakness and refrigeration of the guts and stomack, is cured by heating and strengthening medicines as well applied outwardly as taken inwardly by the mouth, or otherwise. The beginning of the cure of that which is occasioned by tough flume and fluidities, is by the mitigation of the pain, being there is nothing which more dejects the powers than pain. To this purpose shall you provide bathes, Seminump, fomentations of mallowes, marsh-mallowes, violet leaves, pennyroyal, fennell, Origanum, the seeds of time and fage, com, flowers of camomill, meliloe, and other such like, which have power to heat, dry, attemurate, and rarifie the skin, so to disipate the wind. But all such must be actually hot. Also the belly may be amended with this following ointment. R. oleis chammum, aneth. butyr. recent. an. Si. fom. aq. v. per. & galang. an. Si. aq. v. vita, ot. salvias adh. thym. chamom extr. an. i. The following liniment is much commended by Hofferman. R. olei rub. & nard. an. Si. galiamb cam. aq. v. distillat. Si. liquellatis fluid. adde Ziz. gra. croci, gra. vi. past linimentum. Also little bags made with mullen, oates and falt fryed with a little white wine in a trying pan, shall be applied hot upon the belly & flymes, and renewed before they grow cold. You may, in stead of these bags, use one bladder half filled with a decoction of refoving things; as falt, rocemary, thime, lavender, bay-berries and the like, then inject a glyfter being thus made. R. quatuor mol. an. m. orig. puleg. calomel. an. m. & ungu. carm. an. m. flor. ang. n. i. bulettum in hydromelle ad lib. i. qua distillate bened. lacis melis ambitati. face rub. an. Si. oleis aneth. & thymum. an. Si. Let a glyfter be made to bee injected at twice; for the gums being stretched out cannot conteine the accustomed does of a glyfter: also this following glyfter is much approved. R. vini malv. & olei nucum. an. Si. aq. v. vita. & oleis juniperi. & ros. per quinquant. ext. extrat. an. i. Let this be injected as hot as the patient can endure. I have of times as by miracle helped intolerable pain caused by the wind collick and phlegme with this glyfter. Avicein prescribes a carminative glyfter made of hylope, origanum, aconit, anis seeds and English galengall. Let the patient feed upon meats of good juice & esie digestion, as brothes made with the woods of eggs, faffron, hot herbes and a nutmeg; let him drink good wine, as Muskedine, or Hygroes made with good wine fo to heat the stomack & guts. For in Galen opinion, all windineffe is generated by a remiffe heat. But if the pain shall continue, a large Cupping-glafe shall bee applied to the navill to draw and disipate the windineffe; the belly shall be bound with strong and broad ligatures, to strengthe the guts, and difcuffle the matter of fluidities. The patients taught by nature, us this remedy, whilft none admonishing them, they preffe the belly with their hands in the butterneffe of paine. But if the paine cannot be thus appeased, we must come to such medicines as were by an occult properitie, as the dried gut of a Wolfe, for a dram thereof made into powder is given in wine with good succefe. That collick which is caused by a cholerick inflammation requires contrary medicines, to wit, bloodeltering and a refrig-

erating diet; potions made of Diacatholic and Caffia disdiluted in barley water, also cooling glysters. Avicein prescribes narcotics, for that being cold, they are contrary to the morbifice cause which is hot and dry; such are pills of Phlolinum. Also pills of thepica in the quantity of 6iv. with opium and faffon, of each one graine, may be used. Also baths are appointed, made of water wherein mallowes, marsh-mallowes, violet leaves, flowers of white lillies, lettuce, pufflaine, have bin boilied, to correct the acrimonie of the cholerick and hot humoures, whence the difeafe and symptome ariseth. That collick which is like to this, and proceeds from falt, acride, thick and tough phlegme, is cured, the humour being first attenuated and diffused, and at length evacuated by medicines taken by the mouth and otherwise according to the prescription of the learned Phillipian. But Avicein cures that which is occa-

sioned by the suppression of the hardened excrementes, and twining of them by meas-

es
which have an emollient faculty, such as humecting broths, as that which is made of an old cock tied with running, & thrashed to death, & so boiled with dill, polypody & a little salt, until the broth fall from the bones; also he uteth detergent gyters such as this which follows. Rx. beta, m. is surfarica. p. fowt, nu. alba. m. fiet de- collio ad 5 b. i. in qua dissolvit irritis & mortes an. 5 b. j succ. rub. 3 oz. fesam. 3 oz. But if the obstruction be more contaminous, you must use more powerful ones made ex
cyclaminion, cenarrhio, & hieris discollotic, ad 5 li. But if the obstruction do withstanding remaine, so that the excrements come forth at the mouth, Mariamus Sanctus
wilthest (by the counsel of many who have so freed themselves from this deadly
symptom) to drink three pounds of quicksilver with water only. For the doubled
and as it were turned up gur is unfolded by the weight of the quicksilver, and the
excrements are deprect and thrust forth, and the worms are killed which gave occa-
ision to this affection. John of S. Germaines that most worthy Apothecary hath told me
that he saw a Gentleman who when as hee could not bee freed from the paine
of the collick by any means prescribed by learned Physitians, at length by the coun-
fell of a certaine German his friend, drank three ounces of oile of sweet almonds
drawn without fire, and mixed with some white wine and pelitory water, and swal-
lowed a ledan bullet befarcared with quicksilver, and that bullet comming presently
out by his fundament, he was wholly freed from his collick.

CHAP. L IX.

Of Phlebotomie, or Blood-letting.

Plebotomie is the opening of a veine, evacuating the blood with the
rel of the humours; thus Artieriotomie, is the opening of an Artery.
The first scope of Phlebotomie is the evacuation of the blood offend-
ing in quantity, although oft-times, the Physicians intention is to
draw forth the blood which offends in quality, or either way by open-
ing a veine. Repletion which is caufed by the quantity is two-fold, the one ad vi-
res, that is, to the strength, the veines being otherwise not very much swelled; this
makes men infirme and weake, nature not able to beare this humour, of what kinde
soever it be. The other is termed ad vasa, that is, to the vessels, the which is so called
comparatively to the plenty of blood, although the strength may very well away
there with. The veines are oft-times broke by this kind of repletion, so that the pa-
cient suffers and spits up blood, or else evacuates it by the nofe, wonbke, hemorrhoids,
or curits. The repletion which is ad vasa is knowne by the heavinffe and weari-
omenne of the whole body, but that which is ad vasa is perceived by their dilatation
and fulnife, both of them stand in neede of evacuation. But bloud is onely to
be let by opening a veine, for five respectes: the first is to leffen the abundance
of blood, as in Phlethorick bodics, and those who are troubled with inflammation
without any plentitude. The second is for diversion, or revulsion, as when a veine
of the right arm is opened to lay the bleeding of the left notheile. The third is
to allure or draw downe, as when the saphe is opened in the ankle to draw downe
the courtes in women. The fourth is for alteration or introduction of another qual-
ity, as when in sharpe feavers we open a veine to breathe out that blood which is heat-
ed in the veines, and cooling the residue which remains behind. The fift is to pre-
vent imminent diseases, as when in the Spring and Autumn we draw blood by open-
ing a veine in such as are subject to spitting of blood, the eqinquanies, pleuritic,
taking feake, apoplexie, madnesse, gout, or in such as are wounded, for to prevent
the inflammation which is to be feared. Before blood-letting, if there bee any old
excrements in the guts, they shall bee evacuated by a gentle gyfter, or suppository,
left the mefa馥ie veines should thence draw unto them any impuritie. Blood must
not be drawne from ancient people unleefe some present necessity requires it, left the
native heat which is but languid in them should be brought to extreme debility, and
their substance decay; neither must any in like sort be taken from children, for fear
of resolving their powers by reason of the tenderness of their substance, & rarity of
their habit. The quantity of blood which is to be let, must be considered by the
strength of the patient, and the nature of the disease: therefore if the patient be
weak, and the disease a large evacuation, it will be convenient to part the let-
ting of blood, yet by the interposition of some days. The vein of the forehead
being opened is good for the pain of the hind part of the head, yet first we foment
the part with warme water, that so the skin may be the softer, and the blood drawn
into the veins in greater plenty. In the great veins which are under the tongue
must be opened a little without tying any ligature about the neck for fear of
strangling. Phlebotomie is necessary in all diseases which stop or hinder the
breathing, or take away the voice or speech, as likewise in all contusions by a heavy
stroke, or fall from high, in an apoplexy, sanguination, and burning feaver, though
the strength be not great, nor the blood faulty in quantity or quality, blood must
be let in the height of a fever. Most judge it fit to draw blood from the veins most
remote from the afflicted and inflamed part, for that th' course of the humours
may be diverted, the next veins on the contrary being opened the humours may be
the more drawn into the afflicted part, and so increase the burden and paine. But
this opinion of theirs is very erroneous, for an opened veine alwaies evacuates and
disburdens the next part. For I have sundry times opened the veins and arteries
of the afflicted part, as of the hands & feet in the Gout of these parts; of the
examples in the Megrim, whereupon the paine alwaies was somewhat alleviated, for that
for together with the evacuated bloud, the malignity of the Gout, and the hot spirits
causers of the head-ach or Megrim were evacuated. For thus Galen wisdom to open
the arteries of the temples in a great and continuinous defluxion falling upon the
eyes, or in the Megrim or head-ach.

CHAP. LX.

To open a veine, and draw blood from thence.

The first thing is, to seat or place the patient in as good a posture
as you can; for in his bed if he be weak, but in a chair if strong,
yet so that the light may fall directly upon the vein which you
intend to open. Then the Surgeon shall rub the arme with his
hand, or a warme linnen cloth, that the blood may flow the more
plentiuly into the vein. Then he shall bind the veine with a liga-
ture a little above the place appointed to be opened, and he shall draw back the
blood upwards towards the ligature from the lower part; and if it be the right arme,
he shall take hold thereof with his left hand, but if the left, then with his right hand,
pressing the vein in the meantime with his thumb a little below the place where
you mean to open it, left it should slip away; and that it may bee the more twolne
by forcing up the blood. Then with his nail he shall marke or deligne the place
to be opened, and shall annoint it being so marked with butter or oyle whereby the
skin may be relaxed, and the lancet enter more easily, and therefore the fection may
be the less painefull. He shall hold his lancet between his thumb and forefinger, nei-
ther too near nor too far from the point; he shall rest his other three fingers upon
the patients arme, that so his hand may be the more steddy & lefstrumbling. Then
shall he open the vein with an incision agreeable to the magnitude of the
vein, & the indi-

ferent thicknesse of the contained blood somewhat allant, diligently avoiding the
artery which lies under the basilica, & the nerve, or tendon of the two-headed muscle,
which lies under the Median vein. But for the Cephalick it may be opened with-
out danger. As much blood as is sufficient being drawn, according to the mind of
the Physician, he shall loose the ligature, and laying a little boulfer under, hee shall
with a ligature bind up the wounded part to stay the bleeding; the ligation shall be
neither too strait, nor too loose, but so that the patient may freely bend and extend his
arme, wherefore whilst that is in doing he must not hold his arme freight out, but
gently bended, otherwise he cannot freely bend it.

When and for
what it is necess.
ary.
Of divers preternatural Affects.

The figure of a Lances to let blood withall.

CHAP. LXI.

Of Cupping-glasses, or ventiles.

Upping-glasses are applied especially when the matter conjunct and impact in any part is to be evacuated, and then chiefly there is place for scurification after the cupping-glasses: yet they are also applied for revulsion and diversion, for when an humour continually flows down into the eyes, they may be applied to the shoulders with a great flame, for so they draw more strongly and effectually. They are also applied under women's breasts, for to stop the courses flowing too immoderately, but to their thighs for to provoke them. They are also applied to such as are bit by venemous beasts, as also to parts poxelled by a pelliferous Bubo or Carbuncle, so to draw the poyson from within outwards. For (as Celsius saith) a Cupping-glass where it is fastned on, if the skin be first scarified, draweth forth blood, but if it bee whole, then it draws spirit. Allo they are applied to the belly, when any groffle or thick windinefe, shut up in the guts, or membranes of the muscles of the Epigastro, or lower belly causine the Collick, is to bee discusse. Allo they are fastned to the Hypocondry's, when as flatulency in the liver, or spleene twells up the entraile lying thereunder, or in too great a bleeding at the nofe. Allo they are set against the Reines in the bottom of the belly, whereas the ureters run downe to draw downe the stone into the bladder, when as it frops in the middle or entrance of the ureter. You shall make choice of greater and leffer Cupping-glasses according to the condition of the part, and the contained matter. But to those parts whereto these cannot by reaoning of their greatneffe be applied, you may fit horns for the fame purpofe.
The figure of cupping-glasser of different bigness, with little holes in their bottomes, which shall be stopped with waxe when you apply them to the part, but opened when you would take them off, that the aire may enter in with the more ease.

'A Lancet.'
Hornes which without fire, by only sucking at the upper hole, draw from the parts lying under them.

Chap. LXXI.

Of Leaches, and their use.

The use of Leaches.

Noth parts of the body whereunto Cupping-glass, or horns cannot be applied, to those Leaches may for the most part be put, as to the fundament to open the coat of the hemorrhoidal veins, to the mouth of the wombe, the gums, lips, nose, fingers. After the Leach being filled with blood that falls off, if the disease require a large evacuation of blood, and the part affected may endure it, Cupping-glasses, or horns, or other Leaches shall be substituted. If the Leaches be handled with the bare hand, they are angered, and become so tumultuous as that they will not bite, wherefore you shall hold them in a white & clean linen cloath, & apply them to the skin, being first lightly scarified, or besmeared with the blood of some other creature, for thus they will take hold of the flesh, together with the skin more greedily & fully. To cause them fall off you shall put some powder of Aloes, salt or ashes upon their heads. If any desire to know how much blood have drawn, let him sprinkle them with salt made into powder, as soon as they are come off, for thus they will vomit up what blood ever they have sucked. If you desire they should suck more blood than they are able to containe, cut off their tails as they suck, for thus they will make no end of sucking, for that it runs out as they suck it. The Leaches by sucking draw the blood not only from the affected part whereunto they are applied, but also from the adjacent and distant parts. Also sometimes the part bleeds a good while after the Leaches be fallen away, which happens not by scarification after the application of Cupping-glasses or horns. If you cannot stop the bleeding after the falling away of the Leaches, then preffe the halfe of a beane upon the wound, until it stick of it self, for thus it will stay; also a burnt rag may be fitly applied with a little boulster and fit ligature.

The end of the seventeenth Book.
OF THE GOUTE.

THE EIGHTEENTH BOOK.

CHAP. I.

The description of the Goute.

The Goute is a disease occupying and harming the substance of the joints by the falling downe and collection of a virulent matter accompanied by the four humors. This word Arthritis or Goute, is generally for every joint to affected; yet it enjoys divers particular names in sundry joints of the body, as that which falleth upon the joint of the Jaw, is termed Siagona. Particularly for that the Greeks call the Jaw Siagen, that which affects the neck is termed gouts. The neck is in Greek termed Trachelos; that which troubles the backe bone is called Rhachisagra, for the spine is termed Rhachis; that which molest the shoulders Omagra, for the joint of the shoulder is stiled Omor: that which affects the joints of the Collar-bones Cleisagra, for that the Greeks call this bone Cleis; that in the Elbow, P.chyagra, for Pechis signifies the elbow: the goute in the hand is called Chiragra, in the Hippe Iphias, in the knee Ganagra, in the feet Pedagra, for that the Hand, Hippe, Knee, and Foote are in Greek termed Cheir, Iphios, Goni, and Pouer. When as there is great abundance of humours in a body, and the patient leads a sedentary life, not some one, but all the joints of the body are at once troubled with the Goute.

CHAP. II.

Of the occult causes of the Goute.

The humor causing the Goute is not of a more knowne, or easily express nature than that which causeth the plague, Vias venerea, or falling fickenesse. For it is of a kind and nature cleane different from that which causeth a Phlegmon, adema, erysipelas, or Scirrhus: for, asAetius saith, it never commeth to suppuration like other humours, not for that, as I think, because it happens in bloodlesse parts, but through the occasion of some occult malignity. Here-to may be added that the humours which cause the forementioned tumours, when as they fall downe upon any part, not then truly when they are turned into pus or matter, do they cause fo sharpe paines as that which causeth the Goute, for the paine thereof is farre more sharpe, than of that humour which breedeth an ulcerated Cancer. Besides these humours, when they fall upon the joints through any other occasion, never turne into knots, only that which causeth the Goute in the joints, after
after it hath fallen thither, is at length hardened into a certaine knotty and as it were plaster-like substance to bee amended by no remedies. But seing it offendeth the parts by which it flowes downe, (no more than the mater which creeping up-wards from the lower parts to the braine, causeth the Epilepsie) as soone as it faileth into the spaces of the Joints it causeth cruel paine, one while with heat, another while with cold. For you may see some troubled with the Goute, who complaine that their pained Joints are burnt, there are others to whom they seeme colder than any ice, so that they cannot be sufficiently heated to their hearts desire; verily you may sometimes see in the same body troubled with the Goute, that the Joints of the right side will as it were burne with heat, but on the left side be stifte with cold, or which is more, the knee in the same side to be tormented with a hot distemper, and the ankle troubled with a cold. Lastly, there sometimes happens a succedence of paine in a succedence of days; of the same joints will be this day troubled with a hot, to morrow with a cold distemper, so that we need not marvel to see Physitians prescribe one while hot, another while cold medicines against the same disease of the same part and body. Also it sometimes happens that the malignity of this humour doth not onely not yield to medicines, but is rather made worse, so that the patients affirm that they are far better when they have none, than when they have any remedies applied. For all things being rightly done, and according to reason, yet the disease will come againe at certaine seasones by fits, and hereupon it is said by Horace:

Qui cupit, aut meas, juvat illum sic domus auter, 
Et Aippum pilae tabula, fomenta podagram.

Riches the covetous, and fearfull so doe pleafe, 
As pictures fore eyes, Bathes the Goute doe caue.

Certainly such as have this disease hereditarily, can no more bee helped and thoroughly freed therefrom, than those in whom the matter of the disease is become knotty, whereof God thus speaketh:

Solle ne defam nefcit medicina podagram.

Physitiae cannot the knotty Goute to heale.

Thee reasons have induced many to believe that the essence of this disease is unknowne, for there is a certaine occult and inexplicable virulenct, the author of so great malignity and contumacy. Which A uenin seems to acknowledge, when hee writes that there is a certaine kind of Goute whose matter is so acut and maligne, that if at any time bee augmented by the force of anger, it may suffice to kill the party by addaime death. Therefore G a l en himselfe writes that Treacle must be used in all Arthriticall and gouty affections, and as I think, for no other reason, than for that it dries, wafettes and weakens the malignity thereof. C a rd o n i u s is of the same opinion, but addeth withall, that the body must be prepared and purged before we use Treacle. Therefore the matter of the gout is a thin and virulent humour, yet not contagious, offending in quality rather than quantity, causing extreme paines, and therefore infliguing the humours together with the caliginous and diluent spirits prepared or ready for defluxion upon the affected parts. Therefore as the bites of A p e s , and pinnings of W a l p e s cause cruel paine with sudden swelling and blitting, which is by the heat of the humours which the poyson hath tainted, and not by the simple application of contumacy, seeing that we daily see Shoemakeres and Taylors prickening their flesh with aules and needles without having any such symptome. Thus the virulency of the gout causeth intolerable tormenting paine, not by the abundance, because it happens to many who have the gout, no figne of defluxion appeareing in the joints, but onely by a maligne and inexplicable quality, by reason whereof these paines do not cease unless abated by the helpe of medicines, or nature, or both. The recital of the following histories will give much light to that unexplicable
Concerning the Gout.

L I B . 1 8 .


cable and virulent malignity of the matter causing the gout. Whilest King Charles the ninth, of happy memory, was at Burdeaux, there was brought to Chapellaine and Caflellan the Kings Physicians, and Taile a Physicin of Burdeaux, Nicholas Lambert and my selfe Surgeons, a certaine Gentlemewman some forty years old, exceedingly troubled for many yeres by reason of a tumour scaring equality the bigulence of a palse, on the outside of the joynte of the left Hippe: one of her tormenting fits tooke her in my presence, shee pretently bengane to cry and roare, and rashly and violently to throw her body this way and that way, with motions and gestures above a womans, yeas a mans nature. For shee thrufh her head between her legges, laid her feates upon her shouldeares, you would have saide shee had beene professed of the Divils. This fit held her some quarter of an houre, during all which time I heedfully observed whether the grieved part swelled any bigger than it was accustomed, whether there happened any new inflammation; but there was no alteration as farres as I could gather by sight or feeling, but onely that shee cried out more loudly when I touched it. The fit passe, shee tooke her, all her body rane down with sweate, with so great weareness and weakeenesse of all her members, that shee could not so much as raise her little finger. There could bee no suffisition of an Epileptick fit, for this woman all the time of her agony did perfectly make use of all her members, did speake, discouers, and had no convulsion.

Neither did shee spare any cost or diligence, whereby shee might bee cured of her disease by the help of Physicion, or famous Surgeons; shee conformed to doubts, warrors and charmers, to that shee had left nothing unatempted, but all was exceed of the weareness of the disease. When I had seene all these things at our consultation, we all with one consent were of this opinion, to apply a potentall Cautery to the grieved part, or the tumour. My selfe applied it: after the fall of the Ecbar very blacke and virulent flumes flowed out, which freed the woman of her paine and disaise for ever after. Whence you may gather, that the cause of so great aill was a certaine veneneous malignity, hurting rather by an inexplicable quality then quantity, which being overcome and evacuated by the Cautery, all paine abolutely ceased. Upon the like occasion, but on the right arme, the wife of the Queens Coach-man at Ambosil consultes Chapellaine, Caflellan, and me, cearfully craving ease of her paine, for shee was so grievously tormentened by fits, that through impatience, being carlessesse of her selfe, shee endeavoured to cast her selfe headlong out of her chamber window, for feete whereas shee had a guard put upon her. Wee judged that the like monter was to be assaulted with the like weapon, neither were we deceived, for using a potentall cautery, this had like faccuse as the former. Wherefore the bitternesse of the paine of the gout is not occasioned by the onely weakeenesse of the joints, for thus the paine should be continuall, and always like it self: neither is it from the disinter of a fimple humour, for no fuch thing happens in other tumours of what kind soeuer they bee of; but it proceeds from a veneneous, maligne, occult and inexplicable quality of the matter wherefore this disaise stands in need of a diligent Physician and a painfull Surgeon.

CHAP. III.

Of the manifett causes of the Gout.

Though these things may be true, which we have delivered of the occult cause of the gout, yet there be and are vulgarly assigned others, of which a probable reason may bee rendred, wherein this malignity whereof wee have spokenes lies hid and is feated. Therefore as of many other diseases, so also of the gout there are assigned three causes; that is, the primitive, antecedent and conjunct; the primitive is twofold, one drawn from their first originall and their mothers wombe, which happens to such as are generated of gouty parents, chiefly if whilst they were conceived, this gouty matter did actually abound and fall upon the joynts. For the feed falls from all the parts of the body, as faith Hippocrates, and Artisole.
Concerning the Gout.

Aristotles affirms lib. de gener. animal. Yet this caueth not an inevitable necessity of having the gout, for as many begot of foul and heathenfull parents are taken by the gout by their proper & primary defect; so many live free from this dye, whose fathers notwithstanding were troubled therewith. It is probable that they have this benefit and privilege by the goodnesse of their mothers feed, and the laudable temper of the womb, whereof the one by the mixture & the other by the gentle heat, may amend and correct the faults of the paternal feed; for otherwise the diceafe would become hereditary, and gouty persons would necessarily generate gouty, for the feed followeth the temper and complexion of the party generating, as it is fowned by Avicenna. Another primitive caufe is from unordinate diet, especially in the life of meat, drink, exercise and Venerie. Lastly by unprofitable humours which are generated and heaped up in the body, which in procefe of time acquire a virulent malignity; for these fill the head with vapours raised up from them, whence the membranes, nerves and tendons, and consequently the joynts become more lax and weak. They offend in feeding who eat much meat, and that of fundry kindes as the fame meate, who drink thronge wine without any mixture, who sleep presently after meat, and which use not moderate exercices; for hence a plenteous, and obfruction of the vehik, curdituis, and the encrease of excresments, especially feros. Which if they flow down into the joynts, without doubt they cause this dieafe; for the joynts are weak either by nature or accident in comparison of the other parts of the body, by nature, as if they be foole and foft from their first originall; by accident, as by a blow, fall, hard travelling, running in the fun by day, in the cold by night, racking, too frequent venery, especially suddenly after meat; for thus the heat is diffolved by reason of the diffipation of the spirits caufed in the effufion of feed, whence many crude humours, which by an unfeafeable motion are fent into the fnews & joints. Through this occasion old men, because their native heat is the more weak, are commonly troubled with the gout. Besides also the suppreffion of excrements accustomed to be avoided at certaine times, as the courfes, hemorrhoides, vomit, fcomer, caufeth this diceafe. Hence it is, that in the opinion of Hippocrates,

A woman is not troubled with the gout, unleffe her courfes falle her. They are in the fame cafe who have old and running ulcers suddenly healed, or venere cuts and healed, unleffe by a fhrift courfe of diet they hinder the generation and increafe of accustomed excrements. Alfo tho^e which recover of great and long dieafes, unleffe they be fully and perfectly purged, either by nature or art, these humours falling into the joynts, which are the relics of the diceafe, make them to become goutie; and thus much for the primitive caufe. The interminal or antecedent caufe is, the abundance of humours, the largeness of the vehik and passagges which run to the joynts, the strength of the amandating bowels, the loofenesse, loftinesse and imbecility of the receiving joynts. The conjunct caufe is the humour it felfe impact and fhut up in the capacitie and cavities of the joynts. Now the unprofitable humour, on every fide fent downe by the strength of the expulsive facultie, sooner lingers about the joynts, for that they are of a cold nature and denfe, fo that once impat in that place, it cannot be eafily digested and resolved. This humour then caufeth paine by reason of diftenfion or solution of continunity, diitemper, and befores the virulence and malignity which it acueth. But it favours of the nature sometimes of one, sometines of more humors; whence the gout is either phlegmonous, or erysipulous, ce-dematus, or mixt. The concurfe of flatuencies, together with the flowing down humours, and as it were tumult by the hinderance of tranpiration, increafeth the doloriffe diltenfion in the membrances, tendons, ligaments and other bodies wherein the joint conflits.
CHAP. IV.

Out of what part the matter of the Gout may flow downe upon the joints.

The matter of the gout commeth for the most part from the liver, or brain; that which descends from the braine is phlegmatick, serous, thin and clear, such as usually drops out of the nose, endowed with a maligne and venenous quality. Now it paffeth out by the mucous skin and periostium, as also through that large hole by which the spinall narrow, the brains substitute, is propagated into the spine, by the coats and tendons of the nerves into the spaces of the joints, and it is commonly cold. That which proceeds from the liver is diffufed by the great vaine and arteries filled and puffed up, and participates of the nature of the four humours, of which the maffe of the bloud consists, more frequently accompanied with a hot distemper, together with a gouty malignity. Besides this manner of the gout which is caufed by defluxion, there is another which is by congeftion, as when the too weak digestifl faculty of the joints cannot affimulate the juices sent to them.

CHAP. V.

The signes of the arthritick humour flowing from the braine.

When the defluxion is at hand, there is a heaviness of the head, a desire to ref, and a dulness with the paine of the outer parts, then chiefly perceptible, when the hairs are turned up, or backwards; moreover, the mucous skin of the head is puffed up as swollen with a certain oedematous tumour; the patients, seem to be much different from themselves by reafon of the functions of the minde hurt by the malignity of the humour, from whence the natural faculties are not free; as the crudities of the stomack, and the frequent and acrid belchings may testify.

CHAP. VI.

The signes of a gouty humour proceeding from the liver.

The right Hypochondrie is hot in such gouty persons, yea the inner parts are much heated by the bowell, bloud and choler. carrie the way, the veins are large and swollen, a defluxion suddenly falls down, especially if there be a greater quantity of choler than of other humours in the maffe of the bloud. But if, as it often falls out, the whole bloud, by means of crudities degenerate into phlegme and a wheyish humour; then will it come to paffe, that the gout alfo, which proceeds from the liver, may be phlegmatick, and participate of the nature of an aedema, like that which proceeds from the braine. As if the same maffe of bloud decline towards melancholy, the gout which thence anathem refembles the nature of a fyrbus; yet that can scarce happen, that melancholy by reason of the thickneffe and flovenne, to motion may fall upon the joints. Yet notwithstanding, because we speake of that which may bee of thefe, it will not bee unprofitable briefly to diftinguish the signes of each humour, and the differences of gouts to be deduced from thence.
Chap. Vili.

By what signs we may understand this or that humour to accompany the gouty malignity.

On may give a guess hereat by the patients age, temper, season of the year, condition of the country where he lives, his diet and condition of life, the encrease of the paine in the morning, noon, evening or night, by the propriety of the beating, prickings, sharpe or dull paine; by numbers, as in a melancholy gout or itching; as in that which is caused by tough phlegme, by the sensible appearance of the part, in shape and colour (as for example in a phlegmaticke gout, the colour of the affected part is very little changed from its self, and the neighbouring well parts, in a fanguine gout it looks red, in a cholericke it is fiery or pale, in a melancholy livid or blackish) by the heat and bignesse, which is greater in a fanguine and phlegmaticke than in the reft, by the change, and lastly by things helping and hurtinng. And there bee some, who for the knowledge of these differences will us to view the patients urine, and sense their puire, and consider their excrements which in each particular nature are accustomed to abound or flow, and are now suddenly and unaccustomedly suppressed. For hence may be taken the signs of the dominion of this or that humour. But a more ample knowledge of these things may be drawn from the humours predominant in each person, and the signs of tumours formerly delivered. Only this is to be noted by the way, that the gout which is caused by melancholy is rare to be found.

Chap. VIII.

Prognosticks in the Gout.

By the writings of Physitians the paines of the gout are accounted among the most grievous and acute; so that through vehemency of pain many are almost mad, and with themselves dead. They have certain periods and fits according to the matter and condition of the humour wherein this maligne and inexplicable gouty virulency resides. Yet they more frequently invade in the Spring and Autumne; such as have it hereditarily are scarce ever throughly free therefrom, as neither such as have it knotty: for in the former it was borne with them, and implanted, and as it were fixed in the original of life; but in the other the matter is become plaster-like, so that it can neither be resolved nor ripened: that which proceeds from a cold and pituitous matter, causeth not such cruel tormenting pain; as that which is of a hot, fanguine or cholericke cause, neither is it so speedily healed; for that the hot and thin matter is more readily dissolved; therefore commonly it ceaseth not until fourty dayes bee past: besides also, by how much the substance of the affected part is more dense, and the expulsive facultie more weake, by so much the paine is more tedious. Hence it is, that those gouty paines which mofleth the knee, heele and huckle bone, are more comminacious. The gout which proceeds of a hot matter, refts not before the fourteenth or twentieth day. That which is occaisioned by acride cholere, by the bitternesse of the inflammation and pain causeth a difficulty of breathing, raving, and sundry respiration, and a gangrenous of the affected part, and lastly death; and healed, it often leaves a paffing behind it. Amongst all the gouty paines, the Sciatica challengeth the prime place by the greatnesse of the paine and multitude of symptomes; it brings unquietnesse, and watching, a fever, dilocation, perpetuall lamenesse & the decay of the whole legge, yea and often times of the whole body. Now lamenesse, and leannesse or decay of the part are thus occasioned, for that the decurrent humour forceth the head of the hight bone out of the cavity of the huckle-bone; this being forced out preffeth the muscles, veins, arteries, and that notable and large nerve which runs along the
Concerning the Gout.

L I B I S.

the thigh even to the four jointys of the toes; and by the way is diversely dispered
over the muscles of the whole leg. Therefore because the head of the thigh is put
out of its place; the patient is forced to halt; because the vessels and nerves are op-
preffed, the nourishment and spirits do not freely flow into the parts thereunder;
whence proceeds their decay. Yet if sundry times happens, that the head of the
thigh being not displaced, many halt because the viſcid humour, which is natu-
 rally implanted in that place and continually flows thither, both for the nutrition of
these parts, and the lubrication of the joynyt for quicker motion, is hardened by heat
and idleness, and the other unprofitable humours which flow down do there con-
crete, and do intercept the liberty of motion. A groſſe and viſcid humour into what
joint foever it felleth and stayeth, doth the fame. For by concretion it turns into a
plater like nature at or neare the joynyt, perplexing the cavities thereof, and it depra-
ves the figure of the part, making it crooked and knotted, which formerly was
straight and smooth. Three caufes of
the lameeneffe or decay of the
joint by the gout, the obftruction or comprefion of the veſsels, idleness
and a hotſick diſtemper; but two of lameeneffe, diſlocation and the concretion of an
adventitious humour in the joint. If contrary to cuſtome and reaſon the
paines of the gout do not goe away or returne at their accustomed periods, most
grievous and dangerous discaſes thereon follow, for the matter accustomed to flow
downe into the joints, if it feaſe upon the substance of the liver, cauſes a Phlegmon,
if it flow in the larger veines, a continual fever, if it flow into the membrane inven-
ting the ribs, a Plurifie; if it betake it felfe to the guts and adhere to their coats,
the Colicke or Illaſca paffes; and to conclude, it produceth divers other symptoms,
according to the diſtincty of the parts whereto it flowes and abides. For thus fud-
dry that have been troubled with the gout, become paralitick, because the matter
which formerly flowed downe into the joints, flayes in the substance and pors of
the nerves, and fo hinder the spirit that it cannot freely in its whole substance palfe
through them; hence therefore comes the reolution of the part, whereinto the nerve
is inferred. Old men can never be quite or abſolutely cured of the gout, for that the
vitalitie of their bloud is fo departed from its primary & native goodeffe, that it can no
more bee restored, than dead or fowred wine. The gout which proceeds from a
cool caufe, invades lively and by little and little, and is helped by the uſe of cold things.
Now, although the gout more frequently returnes in the spring and fall, yet it comes in the midſt of winter, the nerves being weakened by the ex-
ceffe of cold, and the humours preſfed out; otherworſe in the midſt of summer, the
tempeſt being diſfipated and diſpafed. Laſtly, it comes at any time or feaſon of the year,
if those who are ſubject to this diſafe feed plenteouſly, and do all things according
unto their owne minde and deſire. Thoſe who are troubled with the gout, ſee the
change of weather, storms, raines, snowes, windeſſ and ſuch like, before they come. A ſountherly conſitution of the aire, for example, ſiſt the body with
humidities, and ſtirs up the humours that lye quiet in the body, and therefore caueth
diſfluxions upon the weaker parts, ſuch as the joints, both by nature, as being
without bloud and fleſh, as also by accident, for that they a long time have been
acſuſed to bee fo tormented, therefore their paines are increaſed in a wet ſeaſon.
Many of thoſe that are troubled with the gout, deſire venery in the bitterneſſe of their
paine, becauſe the inert heat wherewith they then are infamed doth not diffa-
pate into spirits and aire, as the feaفتر heat doth, but diſſolves, and as it were melts
downe the ſeminal humour, which diſſolved, flowes to the genitalis, filleth and
compoſeth them. The fame thing befallts carriage and running horſes, for in theirे
labour, much heat ſends ſtatulences to the bottome of the belly. Yet venery is ve-
ry hurtfull to ſuch as are troubled with the gout, becauſe it diſſolves the spirits
and native heat, and encreateth the unnatural heat; whereby it commeth to paffe that
the nervous partes are weakened, and the paine exaſperated. Rich men, that is, ſuch
as feed riotouſly on variety of dainties, and in the meane ſpace live idily and lazily
are more frequently and cruelly tormented with the gout than poor people, who
live sparingly and hardly: Wherefore there have been seen: not a few of such rich
and notorious persons, who having spent their estates, have therewith changed their
health, together with their fortune and diet, and so have been wholly freed from the
gout.

\[\text{Chap. IX.} \]

\textbf{The general method of preventing and curing the Gout.}

\textit{Hospice, who desire to prevent the gout, must not glut themselves with meat,
must be quick to labour, and abstaine from wine and Venery, or certainly
must not use them, unleffe for their healths sake, must vomit and purge at
certain times. \textit{Hippocrates} writes, that boyes are not troubled with the
gout before the use of venery. Yet at this day many Eunuches are seen to have the
gout, but especially those who abound with idlenesse and pleasure, yet these we have
heretofore mentioned are very effickall, not only for the prevention, but also for
the cure of the present disease. Yet wee must diligently distinguishe the caufes, what
they be, & whence they may proceed, & oppose thereto remedies contrary in quan-
tity and quality. There are abfolutely three diftinct caufes of the gout; A tainture
from the parents; a corruption of the humors by diet and aire; a native, or adven-
titious weakenesse of the joints. Against these there is a twofold indication; the first
is the evacuation and alteration of the pescant humors, the other the strengthening
of the weak joints. These two shall be performed by diet conveniently appointed,
purgings, blood letting, provocation of the hemorrhoids, courses, vomit, urine,
and fit application of local medicines. Therefore, when the time shall come,
wherein the gout accustomed to returne by course, the patient shall have a care of
himselfe by a diligent manner of diet, hee shall leffen the matter of the disease by
phlebotomie (if that the gout shall arise from the blood) from the opposite part,
that by the same means revolution and evacuation may bee made; as if the upper
parts bee inflamed, blood shall bee drawnne from the lower; if on the contrary the
lower, out of the upper, always observing the streightnesse of the fibres. Thus
the right arm being troubled with a gouty inflammation, the Saphena of the right
legge shall be opened, and soo on the contrary; but if this general blood letting
being premised, the paine shall not cease, it will be requisite to open the vein next
to the paine, which I have often performed with happy success.

Yet phlebotomie hath not the like effect in all, for it is not available to such as
perforce find no benefit by phle-
botomy.

What gouty
persons find no
benefit by phle-
botomy.

\textit{In what gouty
diseases most
effectual are
medicines.}

\textit{For offtimes,} diet proveth more available than medicines: therefore the Patient
(if the matter of the gout bee hot) shall either drink no wine at all, or else very
much allayed, that is, as much as his custome and the constitution of his stomacke
can endure. A fit time for purging and bleeding is the Spring and Autumnne, be-
cause, according to the opinion of \textit{Hippocrates}, gouts reigne chiefly in these sea-
tons; in Autumnne, for that the heat of the preceding Summer debilitateth the dis-
geative faculy, the native heat being diffipated: as also the eating of Summer
fruits hath heaped up plenty of crude humors in the body, which easily flow
down into the paffagges of the joynts opened and dilated by the Summers heat: add
Concerning the Gout.

add hereunto that the inequality or variableness of Autumnne weakeneth all the nervous parts, and consequently the joynts. But in the Spring, for that the humours forced inwards by the coldness of the winter, are drawn forth from the center to the circumference of the body, and being attenuated, fall into the joints upon a very small occasion. Therefore there is great both necessity and opportunity for evacuation, which if it shall not avert the accustomed fit, yet it will make it more gentle and ease.

CHAP. X.

Of Vomiting.

Vomiting is by all the Ancients exceedingly commended, not only for the prevention, but also for the cure, especially when as the matter floweth from the braine and stomacke, for the phlegmatick, serous and cholerick humours, which usually flow from the joints, are excluded and diverted by vomit, and also there is attenuation of that phlogme, which being more thick and viscid, adhereth to the roots of the stomack: yet you must consider, and feethe that the patient bee not of too weak a stomacke and braine, for in this case vomiting is to bee suspe&ed. For the time, such as have excrementitious humours flowing downe to the stomack through any occasion, as by exercise and motion, must vomit before they eate; on the contrary, such as are overcharged with an old congection of humours, must vomit after they have eaten some thing. Certainly it is safer vomiting after meat, then it is before. For the dry stomacke cannot, unless with great contention and draining, free it selfe from these impasted humours in the coats thereof; and hence there is no small danger of breaking a veine or artery in the Cheft or Lungs, especially if the patient bee strait chefted, and long necked, the season cold, and hee unaccustomed to such evacuation. I remember that with this kind of remedy I cured a certain Gentleman of Geneva, a history. grievously molestd with a cruel pain in his shouder, and thereby impotent to use his left arme, the Physicians and Surgeons of Lyons seemed to omit nothing else for his cure. For they had used purging, phlegbotomie, hunger, a Diet drink of Gudia-cum and China (although his disease was not occasioned by the Lues Venerea) and divers other topick medicines, neither yet did they any thing avale. Now learning by him that hee was not apt to vomit, but that it was difficult to him, I wifhed him to feed more plentifully, & of many & sundry meats, as fat meat, onions, leeks, with sundry drinks, as batre, pifan, sweet and sharpe wine, and that hee should as it were overcharge his stomack at this meal, and presently after get him to his bed; so it would happen, that nature not enduring so great confusion & perturbation of meats & drinks, whereof some were corrupted already in the stomack, & otherforme scarce altered at all, nature not enduring this confusion and perturbation, would easily and of its owne accord provoke the stomack to vomit, which that it might the better succeed, he should help forward natures endeavour, by thrufing his finger or a feather into his throat, that so the thick and tenacious phlegme might by the same means be evacuated: and not content to doe thus once, I wifhed him to doe the like the second & third day following, for so it verifieth that saying of Hippocrates: The second and third day exclude the relics of the first: afterwards, that hee should vomit twice a moneth: chew maftick failing: rub his necke and the pained part with aqua vitae, strengthened by infusing therein lavender, roefmary, and cloves grossly beaten: conforme his arme by indiffernt exercize: hee performed all this, and so became free from his paine, and recovered the use of his arme. Those who do not like such plentiful feeding, shall drink a great quantity of warm water wherein radish roots have been boiled, and they shall have a care left by using their stomackes to this excretion by vomit they weaken the digestive and retentive faculty thereof. Wherefore such as can naturally, shall think it sufficient to vomit twice a moneth.
Concerning the Gout.

How Diureticke are good for the Gout.

Where to be made.

An another cautery.

Fill. 

Common pills with the addition of Scamony.

Trece, how useful in the gout.

Cephalick fumes.

He defluxion of sereous humours is very singly diverted from the joints by the urine by the use of diureticke medicines. Therefore the roots of Sorrell, parly, rufcus, aspargus, and gracie, and the like, shall be boiled in broth, and given to such as have the gout: for when the urine floweth much and thick, the paine is leffened. Many have found benefit by issues; for the Arthritis malignity flores forth of these, as by rivelets: experience showes it in such as are troubled with the Lues Fernea, for in those that you cannot overcome the malignity by the proper antidote, that is, Quicksilver, they feele no greater ease of the pain, than by application of Cauties, and making of issues. They shall be made in sundry places according to the difference of the pained joints, to wit, in the beginning of the neck, if the defluxion proceed from the braine, and fall into the joints of the Collar-bones or shoulder; if into the Elbow or hand, under the muscle Epemus, if into the hip, knees, and feete, some three fingers breadth under the knee, on the infide; for thus there will follow more plentiful evacuation, by reason that the Sapheoa runneth downe that way. Yet if the patient bee troubled with much bruife, and muft travell much on horse-back, then shall they be made on the outside of the legge, betweene the two bones thereof, that so they may trouble him the leffe in ridinge. If any had rather use an actual cautery, let him take such an one as is triangular and harpe, that fo hee may with more speed and leffe paine perforate that which hee intends, and let him thrust it through a plate of iron which hath a hole therein, and let the place be marked left bee erre; the ulcer shall be kept open by putting in a pill of gold, silver, lute, of the root of orris, hermoda-ciles, gerian, waxe, wherewith some pouder of vitrioll, murcurie or allum shall be incorporated, lest it should fill up with feth sooner than the Physitian shal thinke fit. In the meanse space, the head, oft-times the originall of the evil, shall be evacuated by taking in the winter the pills coelicae, and de Alfaiereth; but in summer, sereous quibus, or Imperials, before the Full of the Moone. 

Concerning the Queist.

Concerning the Gout.

Concerning the Queist.

The other general remedies for the Gout.

The day after the purging, the patient shall take three hours before meat half a dram of Treacle, to strengthen the entrails; pills are preferred before liquid medicines, for that by their long stay in the stomack they easily attract the rosiest humor from the brain, & the other more distant parts. I have known some Physicians, when mixing with ordinary pills a good quantity of scamony, as 7. or 8. grains, with a little ginger, left it should hurt the stomack, have purged by flood a great quantity of sereous humours; the day following they gave barley extreame to correct the harms which the scamomie may have done to the stomack. Others for the same purpose give treacle, which doth not only strengthen the entrail, but also weaknes the virulence of the gouty malignity; the orifice of the ventriele must be flarke after meate, that the vapours ascending to the braine may bee refrained; for this purpose common Drigue powder, Marmelate, or conserve of roes are good. In a warmeason Cephalicke perfumes thus made, 

Ch. XI.

The other general remedies for the Gout.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.

Concerning the Queist.
Concerning the Gout

Let it be put into linnen bagges, with which, being warmed at the fire in a frying-pan, and kept with stirring, the head shall bee rubbed. Let the following medicine be chewed, and kept in the mouth in the forme of a masticatory, in the time of the falling downe of the defluxion.

CHAP. XII.

What Diet is convenient for such as have the Goute.

After the body is once fed, they must not returne to meat before that the concoction be perfected in the stomacke, lest the liver be forced to draw by the mefarum veins that which is yet crude and ill digested, and as it were forced thence. Whence the depravation of the nutriment of the whole body; for the following decoctions do not amend the defect of the first. Let them make choice of meat of good juice and easie digestion, for such as are phlegmaticke, but boiled for such as are cholericke; as they shall find much variety at one meal, so must they eschew the use of pulses, milk, meats, fadads, and sharp things, as verjuice, vinegar, the juice of oranges, and cedrons. They shall not eat unlefe they be hungry, and shall desist therefrom before they be fully satisfied, if it be but for this, that whilest the native heat is busied in the digestion of meat plenteously eaten, it is diverted from the concoction of the noxious humors. The flesh of great fowle, as swans, cranes, peacockes are not of laudible juice, and are with more difficulty digested in the stomacke. Some of the antients have disallowed the eating of Capons, and the like birds, because they are subject to bee troubled with the Gout in the feete. Fishes are to be shunned, for that they heape up excrementitious humours, and are easily corrupted in the stomacke, yea & relaxe it by continuall use. Of the flesh of bearts veale is most to be commended, for that it breeds temperate blood, and laudible juice, and is easily digested. Neither in the mean time is mutton to bee found fault withall. But the like hunger or abstinence must not be appointed to all men troubled with the Goute, for such as are of a fanguine and cholericke complexion, because they are endued with much, and much wasting heat, are to be refrefted with more plentiful nourishment; for hunger sharpeneth cholerc, and doth augment their paines; neither in the interim must they bee fed with too moist meates, for too much moisture, besides that it is the author of putresfaction, will cause defluxions, and drawe downe the matter to the joints. Therefore the Cholericke humor must bee increafed and refrigerated by taking things in wardly, and applying things outwardly, left by its tenuity it should fall downe into the grieved parts. To this purpose conduse brothes altered with lettuce, purflaine, forrell, and the like herbs, and badely creames made with a decoction of the foure cold feeds. Phlegmaticke bodies, by reason that they have not so vigorous heat, doe as it were carry their provant about them, wherefore they must not be fed, neither with many nor with moist meats. All that are troubled with the Goute must thinke those things which are hard of digestion, and which are foon corrupted, for they all have a certain remotis fever which diminisheth the native heat, & makes the meates apt to putrefe. Too plentiful drinking not onely of wine, but also of any other liquor is to be avoided. For by too great a quantity of moifure the meat floats in the stomacke, and the native heat is in forme forrextinguished, whence proceed crudities. Some phlyniasts commend the use of white wine, for that it produces...
Concerning the Gout.

White wine is not good for the gout.

Clearer may be the father, dimmer.

Hydromel must not.

A bad life.


T is a matter of much consequence for the prevention of this evil, to strengthen the joints, whereby they may be able to resist the humors prematurely falling down upon them. Wherefore it is good morning and evening to rub them with Oleum Omphacimum, that is, oil made of olives not come to their natural maturity, or with oil of roses mixed with common salt finely powdered. It may also be mixed with common oil, adding thereto the powder of harts horn, as that which hath an astringent and drying faculty. Also it is good to bath them in this following Lye. \( R. \) cori. granat. mucum cupres; gallarium, fumach, cortic. querni, an. \( 3 \) ii. falsa cons. almin. rosh. an. \( 3 \) i. salvia, rosemar. lavendul. lauri, roa arbor. trem. an. m. l. rof. rub. m. B. bullians omnia in fex \( R. \) vini castri \\& astringenti \\& lixivio parato ex aqua chaliceata \\& cinere quern. Then foment the part with sponges or cotton clothes; after this fomentation shall be carefully wiped & dried with hot linen clothes, taking heed of cold. The juice of unripe Hawes tempered with oxycrate is a singular thing for this purpose. But if you desire to strengthen the joints weakened by a cold cause, then, \( R. \) fol. vora. rois. thy. mi. lavendul. laur. absint. an. m. i. caropy. \( 3 \) ii. piper. com. compl. arom. an. \( 3 \) i. fundantur in aqua vita \\& vini rubri astringentia, an. \( 3 \) ii. bullians leniter in balne maria. With this liquor foment the joints morning and evening. Some think it good to strengthen the joints, to tread grapes in vintage time, which, if they be not able to doe, then let them wash their feet in the Must or new preifted Wine. Also bagges may be thus made for the same purpose. \( R. \) falsa com. almin. rosh. cor. granat. fumach. herbeu. mucum cupres. an. \( 3 \) iii. sol. salvia. rosemar. rof. rub. an. m. B. Let them be all put in linen bags and boiled in Lye, and so make a decoction for to foment the joints.
Concerning the Gout.

Of the Palliative Cure of the Gout and the Material Causes Thereof.

We also must consider the causes whence this disease proceeds, the temper of the diseased body, the parts affected, & those from whence it proceeds. For as these are not always alike, so neither can one and the like remedy be useful in every Gout. For first those which proceed of a cold cause require other remedies, than those which arise from heat, and that which proceeds from any one simple humour, than that which ariseth from divers mixed together. For Choler alone causeth cruel pains, but tempered by the admixture of Phlegme, it becomes more gentle. Furthermore some remedies are good in the beginning, some in the exacerbation of the part, and some at other times. Neither may we use repercussives in the Sciatica, as we may in the Gout of the feet and other joints, unleas the part be fearfully enflamed. Taking these things to consideration we must observe that the Palliative cure of that Gout, which cannot absolutely be helped, as that which is hereditary and inveterate, is performed in the Sciatica.

The first intention is, by appointing a convenient diet in the six things which are termed not natural. The second by evacuating and diverting the antecedent matter, both by purging and phlebotomy. The third, by applying topick medicines according to the condition of the morbid humour and nature of the part. The fourth, by correcting the symptoms, but especially the pain, whereof in these affects there is oft times so great exceed by reason of the inexplicable and invincible malignity of the virulent quality affectionating the humour, that it alone is oft times sufficient to kill the patient. And because the variety of morbid humour causes, brings a variety of remedies, fitted to these four intentions, therefore it behoves a physician to be most attentive in the distinction of these causes. For he may be easily deceived and mistake one for another, for arthritic pains proceeding from a cold matter, if they be mitigated by the application of Narcotick and cold medicines, it may induce us to believe that the material cause is hot, though really it be not so, for Narcoticke whilst must raise paine, not for that they are contrary to the cause thereof, but because they take away the fenes by inducing a numbness, on the contrary, the material cause may sometimes seeme cold, which notwithstanding is hot, for that it becomes better by application of hot medicines, that is, by taking an argument from that which helps, because contraries are cured by contraries, and the like preserved by the like. But herein consists the error, for that hot medicines profit not by their contrariety, but by the attenuation of the grosse matter, by the rarefaction of the skin, and dissipated them into air. Whence you may gather that an argument drawne from this, which helps and hurts, is very deceitfull: moreover it may happen that a large quantity of cold matter flowing down from the brain, may cause great pain by reason of the virulence, & a small quantity of choler mixed with it, which serves for a vehicle to carry down the tough and slow phlegme into the joints, whence the patient becomes thirsty and favourith by reason of the heats and inflammation of these parts, whereby such as are lefle cautelous and heedys will easily be induced to believe that some hot matter is the occasion of this Gout. Now when as not some one simple humour, but different by reason of mixture, causeth the Gout, the yellow, with colour of the part may discover one, as, if the evil matter should proceed from choler onely, which by the tenuity of its substance leaving the center, eaily poifeth the circumference of the body or part: & notwithstanding much phlegme being as it were enraged by the admixture of a little choler, may be the chief cause of the disease, and may peradventure be discovered by the encreas of paine in the night season. A fever arising by means of paine and watching may encrease the conceived opinion of choler, which attenuating and diffusing the humours, drives them into the joyynes, and causeth fiery urines, tinctured with much choller, and a quicke pule. Yet notwithstanding the Physitian shall be in error, if deceived with these appearances, he attempt the cure of this Gout, as arising from a hot, and not from a cold cause: yet I am not ignorant, that the cure of the proper disease must be neglected.
Concerning the Gout.

Thm 5.

neglected for the cure of the symptoms. Besides also, it may come to pass, that choler may be the cause of the Gout, and notwithstanding no signes thereof may appear in the skin, and surface of the affected part, because the coldness of the ambient air, and the force of applied Narcoticks may have destroyed the colour of the juices lying therunder, and as it were imprinted a certain blackness. It also happens, that the body being overcharged with a great quantity of grosse and viscid humour, the expulsive faculty may discharge some portion thereof unto the joints, but leave the rent impact in the cavity of some entraiile, where causing obstruction and putrefaction on may presently cause a fever, and that intermitting, if it be small, & obstinately only the lesser veins, & the of the habit of the body. Wherefore then is it not sufficient that the Physitian employ himself in the cure of the Gout, but it behaves him much more to attend the cure of the fever, which if it bee continual, it differentiates the physitian, and endangers the patient; if it bee intermitting, it easily becomes continual, unless he with fitness with fit remedies, that is, unless you let blood, the belly being first gently purged, and nature be presently freed by a stronger purge of the troublesome burden of the humour. Now it is convenient the purge be somewhat stronger than ordinary, for if it should bee too weak, it will stir up the humors, but not carry them away, & they thus agitated will fall into the pained and weak joints, and cause the Gout to encrease. By this it appears how deceitfull that conjecture is, which relies & is grounded on one signe, as often as we must pronounce judgement of morbid feake caufes. Wherefore to conclude wee must thinke that opinion most certaine concerning the matter of the diseafe, which is strengthened with multiplicity of signes, as those which are drawn from the colour of the part, the heat or coldneffe manifest to the touch, those things that helpe and hurt, the patients famity, the istitution or excels thereof in what daies, & in what houres of the day, the length of those fits, the urine and other excrement comming from the patients body. But for that not a few are in that hereifie, that they think that we must neither purge nor let blood in the Gout, we must here convince that opinion. For seing that Physick is the addition of that which wants, and the taking away of those things that are superfluous, and the Gout is a diseafe which hath its essence from the plenty of abundant humour, certainlie without the evacuation of them by purging and bleeding, we cannot hope to cure, either it, or the paine which accompanies it. Metritis, in his Treatise of the Gout writes, that it must be cured by purging, used not only in the declination, but also in the height of the diseafe, which wee have found true by experience, and it is conformat to this saying of Hippocrates, in paines wee must purge by the ftoole. Besides also, Galen profeffeth that in great inflammations, feaues, and paines, he knew no greater nor surer remedy than to let blood, even to the fainting of the patient. If those which are in this case shall not become better by purging and phlegmatism conveniently prescribed, then it happens by means of drunkenesse, gluttony, and the like diftemper. For hence abundance of crude humour are heaped up, which by their contumacy yeeld themselves leele obedient to medicines. Therefore such gouty persons as are intemperate and given to gluttony and venery, may hope for no health by use of medicines.

Chap. XV.

O of local medicines which may be used to a cold Gout.

little doe to picke medicines availke, unleffe the body of the gouty patient shall be purged from excrementitious humour; besides also there is danger left by the use of repelling medicines, the vituility of the humour may be driven into the entraiile, which thing hath bin the cause of sodaine death to many. Now in the first place we will speake of local medicines which are thought meete for a phlegmatick juice, because this is more frequent, than that which is from a hot
Concerning the Gout.

A hot caufe. At the beginning in every gout, the scientia excepted, we must use astringent things which have a faculty to bind or strenghten the joints, and to dry and waft and consumme the excrementitious humour. As, R. fol. sabina m. b. nucum cuprefo jullii. aluminius rach. s. gum. tragacantha s. mucamuginis pithi & syden. quantum sufficiet, fiat cataplasmata. Or, R. s. scourborium bulbis recentis. b. i. meliis rot. jullii. olei rot. & actei an. s. bulliant simul param. fiat cataplasmata. Or else, R. olei rotar. & myrrhi an. s. pul. corvis myrrhae & aloeos an. s. acaci jullii, incorporantur cum aqua gelatinae coelatum, & fiat augmentum. Some boyle fage, camomile and melilote flowers, wormwood and daw-woor, of each a handful in a sufficient quantity of vinegar, they put the griev'd part into this decoction being warme & by frequent using this medicine, it hath beene found to repell and consume the noxious humour, not onely cold, but alfo cholerick; and alfo to strenghten the part. The fresh faces of Olives layd to the part, affwage paine: dryed Oranges boiled in vinegar, beaten and applyed doeth the fame. Or, IV. medii cortis ulmus cauda equin. juscum, conjolat, majoris, partly a. aluminis rot. thuris an. m. f. farinae  hordei. Uximi com. quantum fuscit cataplasmata ad formam pulvis faut liquida. Commonly then when as the part swelleth up, the paine is leftened, for that the expulfive faculty driveth the humour from the center into the circumference of the part, that is, from within outwards; for in like forr, fuch as have the tooth ake have lefser paine when their checkes begin to swell.

After repercussives, we must come to those which evacuate the coneyned humour by evacuating or resolving it. For every defluxion of humour remaining in any part requires evacuation. Neither must we marvel thereat, if the digested humour doth not vanifh at the firft time; for we must have regard to the cold phlegme which is thick and vifeide, as alfo of the part which is ligamentous, membranous and nervous, and consequently more dense than fleshy parts. R. rad. Bryonia, fighli beat. s. Maris an. s. bulliant in lixivio, pastae teruntur. & coelentur per fetaecum, adduco furno, hordei & faharum an. s. olei chamm. s. fiat cataplasmata. Or, R. farini, bor. de i. lupin. an. s. sulphuris vacti & falsi com. an. s. meliis com. s. pul. aloeos & myrrhae an. s. ag. aur. s. cum lixivio fiat cataplasmata. Or, R. fuci cantus rub. aceti boni. an. s. farini, bor. de i. pul. Horeidi. jullri. s. vitellos ovarum. n. iii. olei chamm. s. s. crocei. s. s. some burne the roots and stalkes of col worts, and mixe the flowers with gres grece and the powder of Orris, and so make a pulstis. Or. R. Lati. vaccaes. b. i. nucem panis albi quantum sufficiet, bulliat simul, addendo pulvoris fubitis florum chamm. et melicis an. m. b. crocei. s. vitellos ovarum an. iii. ol. rotar. s. bullians recentis. s. terebinth. s. fiat cataplasmata ad formam pulvis suas liquida. This Cataplasm may be applyed with good sucess, not onely to phlegmatick & cold, but alfo to any gout, at any time to mitigatethe extremity of the pain in men of any temper, and it must bee changed twice or thrice a day. Alfo Treacle difsolved in wine, and annoy'd on the part, is fayd to affwage this paine. You may for the fame purpofe make and apply emplafers, unguents, cerats and liniments: This may bee the forme of an emplaster. R. gummi ammonis, bidenti, yxracis, an. s. cum acetii & aqua vit. dissolv. & addo farin. fumarg. s. olei chamm. & acetbi. an. s. cera quantum sufficiet, fiat emplasram mola. Or. R. rad. Bryonia. fighli. beat. s. Maria. an. s. bulliant in lixivio complete, & coelentur per fetaecum, addendo olei chamm. s. bullians recentis. s. terebinth. s. cera quantum sufficiet, fiat emplasram mola. Or. R. gum. ammon. opoparagalli. an. s. bulliant in lixivio complete, & coelentur per fetaecum, addendo olei chamm. & acetbi. an. s. cera quantum sufficiet, fiat emplasram mola. Or else. R. fiucce rad. emul. comp. & eboli an. s. rad. aeth. b. b. coquarius & coelentur per fetaecum, addendo florum chamm. & meliis. fambochi, variiform. & hyperici an. p. ii. nucum crespus. an. iii. olei chamm. & acetbi. hyper. lithaum. s. phyca an. s. piagnusinis ann. s. ginkii an. s. ranar visivers viros ani. vi. castelli duos super notas bulliant unius simul in b. ii. b. vini. eterferei. & unam aqua vit. ad conjunctionem succorum & vini, & olim catellorum disolutionem, & forteier exprimantis & exprimatis addo terebinth. s. iii. cera quantum sufficiet, fiat emplasram mola. Alfo, Emp. de vicio. oxvacerrum. s. de vermis. & totidem & the like mixed together, and softened with a little

An astringent
Cataplasm.

A diffusing
fo. 

One partly a.
Astringent and
partly diffusing.

Why the gouty
humour doth
not prefers
vanish upon the
used repercussives.

Greater dis-
cussers.

A Cataplasm
good for any
joint at any
time.

Diffusing
emplasters.
Concerning the Gout.

Let this be the form of an ointment. R. aufer road pueme, imple catellus duros, de quibus demec etern, viscer, caput & pedes; item accipere ranae. R. colores detraeta cuncta in fina ele dejectos vn, misbristat, & heriar. an. 36, fol, saliva, rorsimar, thy- 
mi, rute, am, m. baccarum lauris, & juperi conquias, an. 31. pulvere nigra, mojebas, 
[646x1060]L I  b,i8

Concerning the
little oily, or the like faculty, and good for the same purpose.

Let this be the form of an ointment. R. auferem pueme, imple catellus duros, de quibus demec etern, viscer, caput & pedes; item accipere ranae. R. colores detraeta cuncta in fina ele dejectos vn, misbristat, & heriar. an. 36, fol, saliva, rorsimar, thy- 

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Concerning the
little oily, or the like faculty, and good for the same purpose.
Chap. XVI.

Of local medicines to be applied to a hot or sanguine Gout.

Ere must wee in the beginning make use of repercussives, such as are cold and dry, that they may contend with the morbidike matter by both their qualities: also let them bee affective, to add strength to the part. But I would have you allways to understand that you must first premise generall medicines. 

R. albuminum ovariom. 

Many of the medicines to be applied to a hot or sanguine Gout. Others take the meal of harly, lentils, aceti, ole of roves, myrtles, and with a little vinegar they make a cataplasm; Or, R. sumach, myrtillorum, boli arm. an. 56, aceta, corticum granat. 

This is very excellent and effectuall to stay or hinder phlegmonous and cryspelatous tumours. Also you may make a Cataplasm ex mucagine Cytisiorum in aqua rofarum extra, caffia fibilis, oleo rofato, & acceta. Or, R. pomponorum ovorum, myrtillorum, in aqua rofato, & balsamum in oxycrato. 

This is much commended, for it hath entering thereinto wine and the portigranate pill, which both are very great afftivives, and the juices are exceeding cooling, the meal also hinderers and thickens the sanguine humours that are ready to flow downe, and make the medicine of a good consistence. Another, R. florum hyoscyami & acetofa, involvantur papyri, & sub cernibiti coquantur, mox cum unguentopopulo, olei rofato. 

This reporteth that Sextus Pomponius the Governor of the hither Spaine, as hee overlooked the winowing of his corn, was taken by the paine of the gout in his feet, wherefore hee covered himselfe with the Wheat above his knees, and so was eafeed, his feet being wonderfully dried, and he afterwards used this kind of remedy. It is note worthy, which often happeneth, that the paine cannot bee altogether cast by such like remedies, by reason of the abundance of bloud impend in the part, and wherefore it must be evacuated: which I have done in many with good success, anvis opening the veine which was most swelled and nigh to the affected part; for the paine was presently allayed. Neither must wee too long make use of repercussives; left the matter become too hardened, that it can scarce bee afterwards resolved, as when it shall bee concrete into knots and plasterlike stones: resolving medicines are to be mixed with repercussives conveniently applied, so to diffuse the humour remaining as yet in the part, whereof shall bee spoken in the following Chapter.
Concerning the Gout.

Chapter XVII.

Of local medicines for a cholericke gout.

What preparati

drives are here

required.

He repercu

sives, that must

first be used in this kind of gout, ought to be

cold and moist, so that they may reftiff both the qualities of choler: such

are the leaves of night-shade, purslane, house-leek, henbane, forrell,

plantaine, poppy, cold water, and the like, whereof may be made di-

vers compositions. As, R. succi hofoisius, semperisuis, lacte an. Sii. farin. hordei Si.

olei refait. Sii. agriana in situm fat medicamentum; let it be applied and often chan-

ged, for to at length it will affwage the inflammation. Some think the brain of

e hogge mixed with white starch, or barley meal and oyle of roffes, an excellent me-

dicine. The leaves of mallowes bowled in water, and beaten with a pestell, and ap-

plied, afford much pain, R. succi platis extract, in aqua folani, vetrariisun. Sii. farin.

hordei Sii. sedis g. f. fat limenum. Or elle, R. unguent. refait. mefla, & populi an. Sii.

sue melconum Sii. albo ovorum. Sii. melconis semifum pumato. Also a spunge dipped in ox-

ycrater, and prefled out again and applied thereto doth the fame. Or elle, R. fol. calcium

rub. m. ii. coquantur in oxycrater & terantur; adde ovorum viscelos tres, olei refait. Sii.

fario hordei quantum sufficit. Iugurta caraplasma: Also you may take the crude

juice of cole-worts, dane-weede, and roffes beaten and prefled out, and of thefe

incorporated with oyle of roffes and barley meal make a caraplasme. In winter

time, when as these things cannot bee had greene, you may use ungumentum infrige-
dand: Galeni. & populm. Or elle, R. aqua alba Si. crus. Opii a. i. olei refait.

quantum sufficit, marecentur opium & croce in acte, deinde terantur & incorporates cum

cere & oleo fat centum; spread it upon a cloth, & lay it upon the part, and all about it,

and let it bee often renewed. Some cut Froges open and apply them to the grieved

part. It is confirmed by sundry mens experience, that the paine of the feiatica,

when it would yeeld to no other remedy, to have beene affwaged by annoyning

the part affected with the mucous water or gelly of Snailes, being used for the

space of five or eight days; the truth whereof was affured mee by the worthy

Gentleman the Lord of Longmead, a man of great honesty and credit, who him-

selfe was troubled for six moneths space with the sciatica. This water is thus

made, Take fifty or sixty red Snailes, put them in a copper pot or kettle, and sprin-

gle them over with common salt, and keep them fo for the space of a day, then prefle

them in a courte or haire cloth: in the exprefled liquor dip linnen ragges, and apply

them fo dipped to the part affected, and renew them often. But if there bee great

inflammation, the Snailes thall bee bowled in Vineger and Rose-water. They say

that Citrons or Oranges bowled in Vineger, and beaten in a mortar, and incorpo-

rated with a little barly or beane flower, are good against thefe paines. Or elle, R.

pomorum coirotun in lacte lub. i. butyri Si. viscelos ovorum, nu. ii. acti Si. fat capa-

la. There are some who take cheefe crud newly made, and mixe it in a mortar

in oyle of Roses and barley meal, and fo apply; it reftiffeth the in-

flammation and affwageth paine. Others mixe Caffia newly extracted forth of the

Cane, with the juice of Gourds or Melons. Others apply to the part the leaves

of Cole-worts, and Dane-weede or smallage, or all three mixed together and bea-

ten with a little Vineger. Others makecrete or steep an ounce of linseed in Wurt,

and make the mucilage extraced therefrom into a Caraplasme with some oyle

of Roses and barley meal. Some put oyle of poppys to the pulp of Citrulls or

Gourds being beaten, and fo incorporate them together, and apply it.

This following medicine hath its credit from a certain Galcoine of Bafas that was

throughly cured therewith, when as he had bin vexed long & much with gouty pains,

above the common cutome of stich as are troubled with that disease. Thus is it;

Take a great ridge tile thick & strong, and heat it red hot in the fire, then put it into fuch

another tile of the fame bigness, but cold left it should bume the bed-clothes, then

forth with fill the hot one with fo many Dane-wurt leaves, that the patient may fa-

ley lay the affected part therein without any danger of burning it. Then let the pa-

ient
Concerning the Gout.

ent endure the heat that comes therefrom, and by sweate receive the fruit thereof, for the space of an hour or more, substituting fresh Dane-wurt leaves, if the former become too dry, as also another hot tile, if the former shall grow too cold before the houre be ended. This being done, let the part be dried with warme and dry linnen clothes. Use this particular stone for the space of fifteene days, and that in the morning fasting; afterwards annoint the part with this following oymment. R. succi ebuli B. 1. 6. olei com. [dissect] simul, and let them be put into a trait mouthed glaffe, and well luted up; then let it Boyle in balneo Mariae, being first mixed with some wine, until the halfe thereof be consumed, for the space of tenne or twelve houres, then let it cool, and so keepe it for ufe, adding thereunto in the time of annointing, some few drops of aqua vitae. It may bee annointed twice or thrice in a day, long after meate. Moreover the roots and leaves of Dane-wurt boyled in water, beaten and applied affwage paine; the oyle thereof cheichly extracted performes the partes.

But if the contumacious paine cannot bee mitigated by the described remedies, and becoming intolerably hot and raging, make the patient almost to swoone, when mee must use the narcotics. For although the temper of the part may be weakened by these, the native heat diminished or rather extinguished: yet this is not a litle inconvenience than to let the whole body be wafted by paine; These things have a powerfull refrigerating and drying facultie, taking away the fene of the paine, and furthermore, inrallat the thin, acide and biting humours, such as cholericke humours are. Wherefore if the matter which causeth the paine be thick, wee must abstinence from narcotics, or certainly use them with great caution. R. mina paneis secundus parum colis in laude S. vitellis ovores non, nu. ii. opii 5i. succorums solani, hyosciamus mandaevora, pernixac, temperovoi, an. 3i. Let them bee mixed together and applied, and often changed. Or else, R. follic frasici vitae account an. th. i. bulliant in exsudare & contundamur, cumque vitellis ovores crumorus nu. ii. olearis fat. 5i. farina hortis quod fit fatis, incorporantur, fiat cataplasme; with the ufe thereof I am accustomed to affwage great paines. Or else, R. opii 3i. camphor. 56. olei nemphi. S. laeticia angustat. R. seleni 3i. incorporantur simul in mortario, applicentur. Moreover, cold water applied & dropped upon the part drop by drop, is narcotick and stupefaftive, as Hippocrates affirmeth, Aphor. 29. Sect. 5. for a moderate use thereof the paine is alleviated, and if otherwise used in the part. Mandragge apples boyled in milk, and beaten, doe the samething; alfo the leaves of henbane, hemlock, lettuce, pursainc, being so boiled, doe the same.

If any desire to use these more cold, hee must apply them crude, and not boyled.

But the exceedence of paine being mitigated, wee must deffire the use of such narcotics, and they must rather bee strengthened with hot and digerating things; otherwise there will bee danger lest it bee too much weakened, the temper thereof being destroyed, and so afterwards it may be subject to every kind of defection. Wherefore is shall bee strengthened with the formerly described difcussifing fomentations, and these ensuine remedies. As, R. genu, amnioniaci & belchis an. 5i. dissultantr in aeto, & passionem per satacum, addendo syracia liquida. & farina. fungum. an. 5i. pulveris 3i. olei chamom. 3i. pulveris porsati 3i. cum cera fiat emplastrarium mole. Ore. R. rad. emmae, sbol altheae an. 5i. fem. lini, fungum. an. 5i. sicc. umping. nu. xx. coquantur complecte & trajicantur per satacum, addendo pul. caphorh. 3i. olei chamom. an. 5i. rataeci, an. 3i. medulla cervi 3i. fiat cataplaema. Yet you must use moderation in discussing, left the subtler part of the impact humour being dischewed, the groffer part may turne into a stony conftitute, which also is to bee feared in using repercusses.

I also omitted, that, according to the opinion of the Ancients, bathes of fresh water, wherein cooling herbes have been boiled, used three houres after meate, conduce much to the affwaging of paine; for so used, they are more convenient in cholericke natures, and spare bodies, for that they humef the more, and quickly digest the thin and cholericke, and consequently acride vapours, the pores being openned.
ed, and the humours dissipated by the gentle warmth of the bath. After the bath, the body must be annointed with hydromel or oil, and water tempered together, left the native heat ebb, and the body become more weak. Means of more gvoice juice are more convenient, as beef, sheep's feet, and the like; if it be that the patient can digest them, for the fever pusses the choleric blood, and make it more unfit for delusion.

CHAP. XVIII.

What remedies must be used in pynes of the joints proceeding of a distemper only, without matter.

A blister.

So or so

Strengths of
\[ x^2 + y^2 = r^2 \]

Drawing of pain

arising from a cold distemper without matter.

A fuliginous

vapour some

times the cause of the gout.

There is another kind of gouty pain sometimes caused by a certain excrementitious matter, but so thin and subtle that it cannot be discerned by the eyes. It is a certain fuliginous or footive vapour, like to that which paffeth from burning candles or lampes, which adheres and concretes to any thing that is opposed thereto, which being infected by the mixture of a virulent feous humour whithersoever is applied, causeth extreme pain, somev'hiles in these, and otherv'holes in other joynts, unless you make a way therefore, when it seeketh passage forth, which must be done by在家, cupping-glases, vesicatorics, cauteries, or other the like art.


Concerning the Gout.

CHAP. XIX.

What is to be done after the fit of the gout is over.

It is convenient when the paine is allvaged, that you strengthen the joints. Now, to strengthen them is not only to bind and dry, but wholly to amend the weakenesse left in the part by the diseafe, that is, to difcuffle the humour, if any superfluity thereof remaine; but to humect the part, if the moysture bee exhausted and dryed up. But such as are troubled with the gout, after they are freed from their paine, have notwithstanding such impotency of their joynts that they cannot goe of a long time after; for that the nerves and tendons which are in great number in the feete, being moyftened with much phlegme, are fo relaxed, that they can no more sustaine or beare themselves uppon their feete, than paper when it is wet can bee made to stand. Wherefore, that they may recover the ufe of their feete, the impacted humour must by all meanes be difficulled, and lipt with fomentations, cataplasmes, drying and astringent emplastres. You may use the formerly described fomentation, increaing the quantity of alum and salt, and adding thereto a like quantity of sulphur aqua: then the following emplastre shall bee applied thereto. R. maft plafta, contra rupturam file, tertio, sili. pulv. ros. rub. miscant cupress, gallinarum, gran. myrtill. & fol. ejusdem, thuris, mallich. & carophyll. an. 5i. malaxentur omnia finulam ab uno myrtino & maltichino, fiat emplastrum. Let it bee spread upon leather to a just bignesse, and applyed to the top and sole of the feete. Draw over the plaftre, and the whole legge a stockinge made of a tanned dogges skine; this emplastre strengtheneth the nerves, draweth forth the humour impasted therein, and intercepts the defluxion. But the dogge-skinne stockinge preventeth the native heate of the part, and for that it bindeth, hindreth the defluxion into the feete.

Remedies for the weakeffe left in the joints after the paine is gone.

CHAP. XX.

Of the Tophi, or knots which grow at the joynts of such as are troubled with the Gout.

Some that are troubled with the gout, have knotty bunches growing in their joynts, which by the Ancients were called Tophi. These are generated by the congestion of gross, viscid and crude phlegme, with a little admixture of an acrde and cholericke humour. These matters remayne settled in the part, for that it being too weake cannot digest and depresse them; wherefore being there impasted, they easily concretse into a certaine plaster-like or chalke-like huffance, whilst by the adventitious and burning heate causd by paine, and the gouty malignity, their more subtile part is dispersed, but the groffer subsides. Yet sometimes the unfit application of repercussive, or corrosive medicines is a cause of the generation of these Tophi. For by the former, the impasted matter is increasated and gathered together; but by the latter, the subtile part being diffuddled, the remaint that subsides concretes into Tophi. Those medicines which are made to mollifie, ought to have a moderate ly heating, and humecting faculty, that they may diffuse, and as it were dissolve the impasted matter; such as warme water, the decoction of emollient herbs, the decoction of Calves or Sheepe's entrails, heads and feetes; after thesefor the like fomentations, you shal use the following medicine. R. suingia, human, as. 5i. tereb. 2a. 5i. aq. vit. parum, cera quantum sufficit, flat unguentum molle. Then this which followeth will bee good. R. rad. alth. littorurn, braun. lapath. aucti, as. 5i. coquantur complecte & tracianitum per fenacum; addegum, ammon, bd. l. gal. opoponacis in aceto dissolverum 3i. medul. cervin. 3i, 8,
Concerning the Gout.

Of flatulencies contained in the joints, and counterfeiting true Gouts, and of the remedies to be used thereunto.

Fr-times there is small quantity of humour, which moves the paine of the gout; but much flatulencie mixed therewith, especially in great joints, as in the huckle or hippe-bone, and the knees; they sometimes cause so great dilatation, that they drive the heads of the bones forth of their places. You may partly understand it is so, if the pensive paine afflct the patient with any sense of heavinesse, if when you press the tumour with your fingers, the place retains no marke or impression thereof; as happens in an ataxia, but on the contrary, a flatulent spirit lifts it up as it were by respiration, as if one should thrust a pair of bellows which are fill'd with wind, hence the part cannot performe its duty, for that the spases of the joints are possessed with abundaunce of flatulencies, whose liberty of motion is intercepted, and the member is kept as it were bound up. Many no very skillfull Surgeons putting their fingers to these kind of tumours, so that lifting up the one they press the other, when as they perceive the flatulency, as it were, rising betweene their fingers, supposing it to be the motion of pus or matter already generated and flowing up and downe, as is usuall in impostumes, they have opened it by incision; but when as nothing flowed forth it appeared how much they were deceived, yet in the interim, by this their rashnesse they have caus'd many dangerous symptomes, as encrease of pain, defluxion of humours, by force whereof the bones have beene dislocated, and brought to the patient an incurable laennecce. But these flatulent gouts are seldom without some phlegmatic matter, which is neither too crude, nor viscidce. Such like flatulencies are not caufily diffus'd, nor at the first endeavoure, by reason of a cold distemper which they bring to the part, and the densitie of the membranes and ligaments by which the articulation
Concerning the Gout.

Lib. 18.

Gout,

This following ointment shall be used after the fomentation: R. olei chamin. an. r.tur. laui. an. 3. ii. coni. eca alia. &is. lipimentum addendo ap. viti. & pum. After you have anointed it, apply thereto this following cataplaeme: R. flore. cham. melis. an. n. melis. & absinth. an. 3. fur fur. i. bull. silvis simus cum lico. & cataplaema. desendo pellicr. cum medula. palm. & farina. farina. quantum sufficite. fis cataplaeme. addendo ol. reforit. & myrr. an. 3. iii. Some highly approve of this following medicine for the wasting of fluxulencies. R. axum. f. cu. calc. vir. 3. b. teretum diligentem in morte. t. incorporato. applicentur. Orc. R. flore. capra. colis cum vino. & aceto. an. 3. teret. vini. & mel. cum. aq. vi. & p. rad. treas. florent. & fabin. an. 3. i. olei. rut. & aneth. an. 3. i. farin. farina. quantum sufficite. Make a cataplaeme to the forme of a pulvis. Alto stoupes dipped in oxycrate, and wrung out, shall be applyed; in this oxycrate shall be boyled wormwood, orizamum, chamomill, melilote, rut, common falt, and some aquavita. Then the part shall be bound up as strait as the patient can endure it; in conclusion, that the native strength may by little and little be restored to the part, it shall be fomented with Lyce made of the aoles of Oak-wood and the cuttings of viner, wherein shall be boyled, salt, fulphur, choicel alone, and wetting linen cloaths, and stoupes therein, and applying them, it shall be strictly twathed up. Yet if great pain shall more cruelly vex the part, then neglecting for a time the proper cure of the dislaise, you shall withstand the symptom with rubbing the part, and anointing it with some dicing oil, laying thereon some moist wool & other anodyne things.

Chap. XXII.

Gout, or Sciatica.

For that the hip-gout in the greatnesse of the causes, bitterness of pain, and vehementy of other symptoms, easily exceeds the other kindes of Gout, therefore I have thought good to treat thereof in particular. The pain of the Sciatica is therefore the most bitter, and the symptoms most violent, for that the dearticulation of the hucklebone, with the head of the Thigh-bone, is more depe than the rest; because also the phlegmaticke humour which causeth it, is commonly more plenteous, cold, grosse, and vifcid, that doth flow down into this joint, and lastly because the Sciatica commonly succeeds some other chronicall dislafe, by reason of the translation and falling down thither of the matter, become maligne and corrupt by the long continuance of the former dislafe. But the paine not onely troubles the hippe, but entering deep, is extended to the muscules of the buttocks, the groines, knees, and very ends of the toes, yea often times it vexeth the patient with a sense of paine in the very loines, so that it makes the patients, and also oft times the very Physitrians and Surgeons to thinke it the wind or stone Collick. The cause of such wandering and dispersed paine is to bee referred to the manifold distribution of the nerves which come to that joint from the loines and holy-bone, for they are fent into the muscules of the buttocks, and so dispersed over the whole legge to the very ends of the toes, as it is shewed in our Anatomy. Therefore the paine is largely extended, that is, to what part soever a nerve runs which comes from the affected Hippe. Often times there is no swelling, no rednede, nor distemper manifeft to the eye, by reason that the veins are very few which rife into the surface and skinne of this part, and the humour lyes, as it were, sinken in; which is the cause that divers times the excrementious humour mixed with flaturalency, runne so violently into the cavity of this joint, that relaxing the ligaments...
The thigh-bone is often dislocated by the Sciences, as well proper as common, the head of the thigh-bone is easily driven out from hence, so that it may never be restored again, if it remain so for any space of time; for that in this time the humor falling down into this cavity, by delay concretes as it were into a flaky body, and the head of the thigh-bone wears it off another cavity in the neighbouring bone, but the lips of the true cavity, which are greatly become more feire and deepest, and lastly all the ligamentous bodies moistened with this excrementitious humour become more loose and weak, whence succeed many and most grievous symptoms, as lameness, & the decay not only of the thigh & leg, but at length of the whole body, and lastly a flow and hectic fever, which in continuance of time will consume the patient for the caues formerly mentioned. Therefore let Physicians and Surgeons have a care that they resit it at the first, and with such powerful remedies as are mentioned in the following chapter, hinder the springing up and growth of the formerly mentioned symptoms.

CHAP. XXIII.

The cure of the Sciatica.

Hough the Sciatica be commonly occasioned by tough phlegm, yet if the patient be strong and abound with blood, and all things else concurr, it shall bee good to draw blood by opening a vein; for phlebotomy equally evacuates all humors, therefore the falling down of the humors into the part affected, is thereby hindered, or retarded. Verily I have known no speedier remedy to allay the paine of inflammation, than blood-letting, being first made on the Saphena of the grieved side for revulsions fake; and then for evacuation of the conjunct matter on the vena sciaticae, which is at the out side of the ankle, if the paine of the Sciatica be more on the outside; or else on the Saphena, which is on the inside of the ankle, if the inner parts bee more pained. The quantity of blood which is to be drawn must be left to the judgment of the phyitian, without whose advice I would attempt nothing in this case. Also acrid gisters are good, if there be nothing which may hinder, as ulcers of the guts, or hemorrhoids. * V. rad. acon. 3 ii. centaur. rut. falv. ror. calum. origan. puls. an. m B. fiach. arabic. flo. cham. melit. aneth. an. p. i. sem. anis. & fasic. an. 3 B. sat decolli ad 16. i in colatura dissolve hiera & disphen. an. 3 3. melit. anethis. fasic. rub. an. s. 1. olet litorum 3 3. sat cyll. Strong purgations are also here useful, as of pilulae, fistulae, artheitics. Afinetereb. de herba ranunc. & alium, and others used in phlegmaticke cauces. Balsamum Disparvianum purgath. choller and phlegm. Often vomitings do not onely evacuate the humors, but also make revulsion, as we have formerly delivered. Bathes and sweats profit no otherwise than a dection of gajum or farfapasila. If heat be much in the part, then foment it with oil of roes and vinegar, especially if the pain be deep in, for vinegar by its tenuity pierceth to the bottom, and makes way for the oil, which of its owne nature is anodyne. After the use of generall medicines you shall apply attractive and resolvings things: emplasters of pitch and sulphur, or of Ammonium, euphorbitum, Terbium, Propolis, Galbanum, Balsamum, Opopenax, draw the humour from within to the surface of the skin. As in like sort also the chymical ole of fage, rosemary, pellitory of Spain, and such other like do the same, which by reason of the tenuity of their fluidity, and their separation from earthly impurities, have farre more powerfull and expedite faculties to penetrate and dissolve. Yet must you use none of all these without very good judgment and deliberation, otherwise there will be danger of inflammation.

There may also be made fomentations of dissolving and resolving herbs, as the roots and leaves of dace-weeds, orris, Bay and Juniper berries, the seeds of fannugreekes, anise, fennell, the leaves of fage, rosemary, chamomile, melilote, elder, and the like, boyled in wine and oyle: the following plaster is much commended by the ancients to digest, or resolve and allay the paine, with this which draws forth thorns, splinters, and rotten bones. Be. sem. anis. mumus. spumabores. fals ammoniaci.
Concerning the Gout.

Since the Gom,

Let it be applied to the Hippe. Or, let it be applied to the Hippocrates, &c. when the matter is cold. Or else, &c.

Let it be spread upon the Hip, &c. But if the paine be not by this meanes alTawaged then we must come to more powerfull medicines, as to use great Cupping Glafles appli
ced with much flame, and to vcctiorias, &c.

Alfo blisters may be raifed by applying the inner rindc of Travailers joy to the wait of fome two drarames, a little beneath the grieved part: you must have care that the ulcers that remaine after the skinne of the blifters is taken off, doe run & be kept open for fome time after, that fo more of the humor contenied in the part may bee drawne away. But if wee cannot availle by thefe meanes, we must according to Hippocrates his counfaile, cbmeto-the laft and extremeft temedy. Such (faith he) as troubled with a long paine of the sciatica, have their Hippe fall out of joint, their leg consumes, & they become lame unleffe they be burnt: we have alfo read the fame approved by Celsus. It is the laft (faith he) and moft effcauall medicine in longer ditches, to cauterize with hot irons the skinne of the Hippe in thrice or foure places, & then not to heale up thefe ulcers or fontencls as foonc as may be, but to keepe them open by puting thereinto bullets of gold, or silver, or pills of Gentian, or waxe melted and wrought up with the powder of vitrioll, mercuric, and the like ca
catharetickes untill the affect againft which we ufe this remedy be helped, for by this meanes many have bin helped. Therefore three or foure actual cauteries, or hot irones shall be thơTh in about the joint of the Hip, that they may enter into the feth some fingers breadth, yet fo that you fhan the nerves. Cauceryes here doe good, for that by heating the part, they heat and diffolve the cold humour, they cut, attenuate, and draw forth the groffe and viscosity, fo that they flow out by the ulcers; together with the quitture. Over and beides, the ligaments are strenghened by their cicatrization, and their loofeneffe helped, &by this meanes the whole part is notably corrobated.
Concerning the Gout.

Lib. 18.

CHAP. XXIII.

Of the flatulent convulsion, or convulsive contraction, which is common.

by called by the French, Goute Grumpe, and by the

English, the Cramp.

Hat which the French call Goute grumpe, wee heare intend to treat of, in-
duced thereto rather by the affinity of the name, than of the thing,
or if one speake truly, it is a certaine kinde of convulsion generated by
a flatulent matter, by the violence of whose running downe or motion,
oftentimes the necke, armes, and legs are either extended, or contracted
into themselves with great paine, but that for a short time. The caufe thereof is a
grosse and tough vapor, inflaming it selfe into the branches of the nerves, and
the membranes of the muscles. It takes one on the night, rather than on the day, for
that then the heat and spirits usuallie retire themselves into the entrailes and center
of the body; whence it is that flatulencies may bee generated, which will fill
up, dilate and pull the parts whereinto they runne, just as webee lute-stringers are ex-
tended. This affect often takes such as swimme in cold water, & causeth many to be
drowned, though excellent swimmers, their members by this means being so strait-
lie contracted, that they cannot by any means be extended. For the skin by the cold-
nesse of the water is contracted and condenfed, and the pores thereof shut, so that the
engendered flatulencies have no passage forth. Such as give themselves to drunken-
nesse and gluttony, or floth and idlenesse, are usuallie more frequently troubled with
this disease, by reason of their heaping up of crudities. Therefore it is cured by mo-
derate diet, and ordering of the body, and exercize of each part thereof, for thus they
gather strength, and the generation of the flatulent matter is hindered. In the very
time when it takes one, the patient shall bee cured by long rubbing with warme
clothes, and aqua vitae, wherein the leaves of sage, rosemary, time, savory, lavender,
cloves, ginger, and the like digestion and resolving things, have beene infused. The
extension and flexion of the members or joints, and walking, are also good.
OF THE LUES VENEREA, AND THOSE SYMPTOMES WHICH HAPPEN BY MEANES THEREOF.

The Nineteenth Booke.

Chap. I.

A description of the Lues Venerea.

He French call the Lues Venerea, the Neapolitane disease, the Italians and Germans [as also the English] terme it the French disease, the Latines call it Pudendagra, others name it otherwife. But it makes no great matter how it be called, if the thing itself bee understood. Therefore the Lues Venerea is a disease gotten or taken by touch, but chiefly that which is in uncleane copulation; and it partakes of an occult quality, commonly taking its original from ulcers of the privie parts, and then further manifesteth its selfe by pustules of the head, and other externall parts; and lastly, infecting the entrailes and inner parts with cruel and nocturnal tormenting paine of the head, shouldeares, joynts, and other parts. In procelasse of time, it causeth knots and hard Tumors, and lastly corrupts and foules the bones, disolving them, the flesh about them being oft-times not hurt; but it corrupteth and weakeneth the substance of other parts, according to the condition of each of them, the dilteremer and evill habit of the affected bodies, and the inveteration or continuance of the morisick cause. For some lose one of their eyes, others both, some lose a great portion of the eye-lids, others looke very ghastly, and not like themselves, and some become lquint-eyed. Some lose their hearing, others have their noyes fall flat, the pillar of their mouthes perverted with the loffe of the bone Ethmoides, so that in stead of free and perfect utterance, they faulter and fumble in their speach. Some have their mouthes drawne away, others their yards cut off, and women a great part of their privities tainted with corruption. There bee some who have the Virchures or passage of the yard obstructed by budding caruncles, or inflamed pustules, so that they cannot make water without the help of a Catheter, ready to die within a short time, either by the suppression of the urine, or by a Gangrene arising in these parts, unless ye succoure them by the amputation of their yards. Others become lame of their armes, and other some of their legges, and a third for grow stiffe by the contraction of all their members, so that they have nothing left them but their voice, which both to the body.

What the Lues Venerea is.
Concerning the Lues Venerea.

for no other purpose but to bewail their miseries, for which it is scantily sufficient. Wherefore should I trouble you with mention of those, that can scantily draw their breath by reason of an Afflmos, or those whose bodies waste with a hectic fever and flow consumption? It fares far worse with those, who have all their bodies deformed by a Leprofe ailing thereupon, and have all their throats and throes eaten with putrify and canonic ulcers; their hair falling off from their heads, their hands and feet cleft with letters and scaly chinks; neither is there their case much better, who, having their brains tainted with this disease, have their whole bodies shaken by fits of the falling sicknefe, who troubled with a filthy and cursed flux of the belly, doe continually cast forth thinke and bloody filth. Lastly, there are no kinds of diseases, no sorts of symptoms, where with this disease is not complicacy, never to be removed, unless the virulence of this murrain be wholly taken away, and impugned by its proper Anidote; that is, argernum vitium.

CHAP. II.

Here are two efficient causes of the Lues Venerea; the first is, a certaine occult and specificke quality, which cannot be demonstrated; yet it may be referred to God, as by whose command this hath affailed mankind, as a scourge or punishment to restrain the too wanton and lascivious lusts of unpure whoremongers. The other is an impure touch or contagion, and principally, that which happeneth in copulation. Whether the man or woman have their privities troubled with virulent ulcers, or bee molested with a virulent strangury (which diseafe crafty Whores colour by the name of the whites) the malignity catcheth hold of the other; thus a woman taketh this disease by a man casting it into her hot, open and moist wombe; but a man taketh it from a woman, which, for example sake, hath some small while before received the virulent feed of a whore-masters polluted with this disease, the mucus from whereof remaining in the wrinkes of the womans wombe, may be drawne in by the pores of the standing and open yard, whence succede maligne ulcers, and a virulent strangury. This virulence, like a torch or candle set on fire, will by little and little bee propagated and lent by the veines, arteries and nerves to the noble parts; whose malignity a strong liver not enduring, by the strength of the natural expulsive facultie, will fend it into the groines, whereon follow Abseffes, therefore called venereal Bubos. Thefe, if they returne in againe, and caft not forth matter by being open, they will, by their falling back into the veins and arteries, infect the selfe of the blood by the like contagion, & thence will enuee the Lues venerea. Yet this disease may be got by a more occult manner of touch, as by breathing only. For it is not altogether besides reafon and experience, that a woman long troubled with this diseafe, may, by impure touch of their lips, they may beget, with the vessels of the veins and arteries, and with the selfe of the blood, and thence from thence will enuee the Lues venerea. The Lues venerea may bee got by the only communication of vapours. For it is known, and now vulgarly believed, that mid-wives by receiving the child of a woman infected with this diseafe, to have got this affeed, the malignity being taken and drawn into their bodies through the pores of their hands by the passes of the veins and arteries. Neither doth it spare any condition, sexe, nor age of men; for, not only whomsoever use copulation, but such as onely ly with them, may bee taken by this virulence; yea verily, if they onely ly with the theets or coverings which retaine his sweat, or the virulence cast forth by an ulcer. The same danger may assaile thofe who shall drink in the same vellell after such as are troubled with this diseafe. For by the impure touch of their lips, they leave a virulent fæces and spittle upon the edges of the cup, which is no leeffe contagious in its kinde than the virulence of leprous persons, or the tome of made dogs. Wherefore it is no mervell if children nursed by an infected nurce, draw in the seeds of this diseafe.
Concerning the Lues Venerea

Concerning the Lues Venerea.

gether with the milk, which is only blood whitened in the breasts; or infected suckling children by their hot and ulcerated mouths, may transmit this malignity into the body of the nurse, by the rare, loose and porous substance of the ducts which is frequently infectious.

This following history is very memorable to this purpose. A certain very good Citizen of this City of Paris granted to his wife being a very chaste woman, that conditionally she should nurse her own child of which she was lately delivered, she should have a nurse in the house to ease her of some part of the labour: by ill hap, the nurse they took was troubled with this disease, wherefore she presently infected the child, the child the mother, the mother her husband, and the two of his children who frequently accompanied him at bed and board, being ignorant of that malignity wherewith she was inwardly tainted. In the meantime while the mother when she observed that her nurse child came not for ward, but cried almost perpetually, she asked my counsel to tell her the cause of the disease; which was not hard to be done, for the whole body thereof was replenished with venereal scabs and pustules, the hired nurses and the mothers nipples were eaten in with violent ulcers; also the fathers, and the two other children's bodies, whereof the one was three, the other four yeares old, were troubled with the like pustules and scabs. I told them that they had all the Lues venerea, which took its original and first origin from the hired nurse. I had them in cure, and by God's help healed them all, except the sucking child, which died in the cure. But the hired nurse was soundly lashed in the prison, and should have been whipped through all the streets of the City, but that the magistrate had a care to preserve the credit of the unfortunate family.

In what humour the malignity of the Lues venerea resides.

Though in the opinion of many the antecedent cause of this disease be the malediction of blood containing the four humours, yet I had rather place the matter, and primary, and chief seat thereof in groggy and viscid phlegme infected with the malignant quality of the venereous venome, and from this beginning and foundation, I think by a certaine contagious growth it sooner or later infects the other humours, as each of them is disordered or apt to suffer. Of which my opinion there are many arguments, but this chiefly, That by the evacuation of a phlegmatic humour, whether by the mouth and salivation, or by stool, urine, or sweate in men of what temper soever, whether choleric, sanguine or melancholy, the disease is helped or cured. Secondly, for that the excess of pation is more by night than by day, because then the phlegme bearing sway, severs the is yellow from the bone, or else offends it and the rest of the membranous and nervous bodys by the acrimony of its malignity. Thirdly, because the patients are hurt by the use of cold things, but usually finde benefit by hot medicines, whither they bee ointments, plasters, fumigations, or whatsoever else inwardly taken, or outwardly applied. Fourthly, for that in venereal pustules, there is found a certaine hardnesse at the root, though outwardly they make show of choler or blood. For being opened, you shall finde them stuffed with a certaine plaster-like and topous matter, or else with tough phlegme, or viscid pus; whence arise these hard places, or bony excrescences upon the bones, if not from phlegmaticke humoursthere heaped up and concrete. Fifthly, for that the spermaticke and cold parts doe principally and principally feel the harme of this disease. Sixthly, for that the ulcers which over-spread the body by means of this disease, admit of no cure, unless you fift caufe sweats. Therefore if the matter of the disease, and such ulcers as accompany it were hot and dry, it would grow worse, and be rather increas'd by a decoction of Guajacum, the roots of China, or Sarsaparilla. Seventhly, because often times this disease, the seed thereof being taken or drawne into the body, so lyeth hid for the space.
space of a yeare, that it sweeves no signe thereof, which happens not in difeases pro-
ceeding from an hot matter, which caueth quick and violent motions. By this it
appeareth that the fofb and foundation of the Lues venerea is placed or feated in a
phlegmatick humour, yet may I not deny, but that other humours confufed there-
with may be also in fault, and defiled with the like contagion. For there are scarce a-
ny tumours which proceed from a single humour, and that of one kind, but as in
tumours, fo here the denomination is to be taken from that humour which carryeth
the chiefie sway.

CHAP. IIII.
Of the signes of the Lues Venerea.

When the Lues venerea is lately taken, malignant ulcers appeare in the pri-
vities, swellings in the groines, a virulent strangury runneth offtimes
with filthy fecret, which proceeds either from the poult, or the ulcers
of the urethra; the patient is troubled with paines in his joynts, head,
and shoulders, and as it were breakings of his armes, legsges and all his
members, they are weary without a caufe, fo that neither the foot nor hand can ea-
fily performe his duty; their mouths are inflamed; a swelling troubles their throates,
which takes away their freedom of speaking & swallowing, yea of their very fpittle;
puftles rife over all their bodies, but chiefly certaine garlands of them engirt their
temples and heads; the shedding or loffe of the haire, difgraceth the head and chin;
and leanenesse deformeth the rest of the body; yet all of thefe use not to appeare in
all bodies, but some of them in some. But the moft certaine signes of this disafe
are, a callous ulcer in the privities, hard and ill conditioned, and this fame is judged
to have the same force in a prognosticke, if after it be cicatrized, it retaine the fame
callous hardnesse; the Bubo's, or swellings in the groines to returne backe into the
body without coming to suppuration, or other manifest caufe: these two signes,
if they concurre in the fame patient, you may judge or foretell that the Lues venerea
is either present, or at hand; yet this disafe happeneth to many without the con-
courfe of these two signes, which also bewrayeth it felfe by other manifest signes,
as ulcers and puftles in the rest of the body, rebellious againft medicines though
powerfull, and discreeetly applied, unleffe the whole body bee annoynted with
Argentum ciminum. But when as the disafe becometh inverterate, many become
impotent to venery, and the malignity and number of the symptomes encrease,their
paines remaine fixed and stable, very hard and knotted topbi grow uppon the bones;
and offtimes they become rotten and toule, as also the hands and fceate by the cor-
rup[tion of falt phlegme are troubled with chops or clefts, and their heads are fea-
zed upon by an ophiasis and alopesia; whith tumours with roots deepie faftned in,
arie in fundry parts of the body, filled with a matter like the meate of a cheffnut,
or like a tendon; if they be opened they degenerate into divers ulcers, as purtyde,
eating, and other fuch, according to the nature and condition of the affected bo-
dies. But why the paines are more grievous on the night fcafon: this may be ad-
ded to the true reafon wee rendred in the precedent Chapter, first for that the ve-
nereous virulence lying as it were aleepe is flarred up and enraged by the warme-
nelle of the bed and coverings thereof; Secondly, by reafon of the patients
thoughts which on the night fcafon are wholly turned and fixed upon the only ob-
ject of paine.
Chap. V.

Of Prognosticks.

If the disease be lately taken, associated by a few symptoms, as
with some small number of pustules, and little wandering pains,
and the body besides be young and in good case, and the consti-
tution of the season be good and favourable, as the spring, then
the cure is easy, and may be happily performed. But on the
contrary, that which is inveterate and enraged by the fellowship
of many and malignant symptoms, as a fixed pain of the head,
knots and rottenness of the bones, ill-natured ulcers in a body very much fallen-
away and weak, and whereof the cure hath beene already sundry times undertaken
by Empyricks, but in vaine; or else by learned Physicians, but to whose remedies,
approved by reason and experience, the malignity of the disease and the rebellious
virulence hath refused to yield, is to be thought uncurable, especially, if to these so
many evils, this be added, that the patient be almost wasted with a consumption
and heick leanceness, by reason of the decay of the native moisture. Wherefore
you must only attempt such by a palliative cure; yet bee wary here in making
your prognosticke: for many have beene accounted in a desperate case, who have
recovered; for by the benefit of God and nature, wonders oftentimes happen in dif-
cases. Young men who are of a rare or lax habit of body are more subject
to this disease, than such as are of a contrary habit and complexion. For as not
all who are conversant with such as have the Plague, or live in a pestilential aire, are
alike infected; so neither all who lye or accompany with such as have the Lues
venere, are alike infected or tainted. The pains of such as have this disease, are
different from the pains of the Gout. For those of the Gout return and
 torment by certaine periods and fits, but the other are continual and almost always
like themselves; Gouty pains poiffe the joynets, and in these condense a plaister-
like matter into knots; but thole or the Pocks are rather fastened in the middest of
the bones, and at length diffolve them by rottenness and putrefaction. Vene-
rous ulcers which are upon the yarde are hard to cure, but if being healed, they
shall remain hard and callous, they are signes of the disease lying hidde
in the body.

Generally, the Lues venerea which now reigneth is farre more milde and easie
to bee cured than that which was in former times, when as it first began amongst us;
besides, each day it seemeth to bee milder than other. Aitrologers think the caufe
hereof to bee this, for that the Celestial influences which first brought in this dis-
case, in successe of time by the contrary revolutions of the Starres, lose their
power and become weak; so that it may feeme somewhat likely, that at length
after some few yeares it may wholly ceale; no otherwise than the disease termed
Menagia, which was very like this in many symptomes, and troubled many of the
Romans in the raigne of Tiberius; and the Lichen, which in the time of Claudius
(who succeeded Tiberius) vexed not onely Italy, but all Europe besides. Yet Phys-
icians had rather take to themselves the glory of this leffe raging disease, and to re-
ferre it to the many and wholesome means, which have bee invented, used and
opposed thereunto by the most happy labours of noble wits.
Concerning the Lues Venerea.

CHAP. VI.

How many, and what means there are to oppose this disease.

Any sorts of remedies have beene found out by many to oppose and overcome this disease. Yet at this day there are onely four which are principally used. The first is by a decoction of Guajacum; the second by union of the third by emplasters, and the fourth by fumigation, all of them by Hydrargyrum, the first excepted. Yet that is not sufficiently strong and powerfull, for experience hath taught, that the decoction of Guajacum hath not sufficient strength to extinguish the venome of the venereous virulence, but onely to give it ease for a time; for because it heats, attenuates, provokes sweate and urine, waftes the excrementitious humours by drying them, it feemeth to cure the disease, for that thereupon, for some time, the paine and all other symptomes feeme more remiiff; but these endeavours are weake and deceitfull, as whereby that only which is more subtile in the humours in fault, is exhausted and difpersed by sweate. But Hydrargyrum is a certaine higher power, contains therein all the power of Guajacum, yet much more excellent and efficacious; for besides that it heats, attenuates, cuers, resolves and dryes, it provokes sweate and urine, and besides it expels noxious humours upwards and downwards, by the mouth and stool. By which evacuations not onely the more subtile, but also the more groffe and fucculent excrements, wherein the seat of this disease is properly fixt, are dispersed and evacuated: by which the Physician may bee bold to affhre himfelfe of certaine victorie over the disease. But after the use of the decoction of Guajacum, fresh paines and knots arife by the reliques of the more groffe and visious humours left in the cavities of the entrailes. But Hydrargyrum leaves no reliques behind it.

CHAP. VII.

How to make choice of the wood Guajacum.

Hat is preferred before the rest, which is of a great logge, of a dusky colour, new, gummy, with a fresh strong smell, an acrid and somewhat biring taffe, the barke cleaving very clofe to the wood. It hath a faculty to heat, rarifie, attenuate, attract, to caufe sweate, and move urine, and besides by a specificke property to weaken the virulence of the Lues Venerea. There are three substances taken notice of in this wood: the first is the barke, the other is a whitish wood which is next to the barke, the third is the heart of the wood, that is, the inner, blackifh, and more dusky part thereof. The barke is the more dry, wherefore sicry Tcssit fyou (hall ufc it when as you would dry more powerfully; the middle substance is more moif, becaufe it is more succulent and fad, that which lyeth betweene both is of a milde temper. Wherefore the two laft are more convenient for delicate natures and rare bodies, which require leffe drying. Furthermore, the barke must be given to dense and strong natures, that by the more fircic force thereof, the humours may be made more fluid, and the paffages of the body more paffable. But I would here bee understood to meane such barke as is not putrid and rotten with age, to which fault it is very subject, for that long before it bee shipped by our people, the wood lyeth in breapes upon the shore in the open aire, until they can finde chappmen for it, which, when it is brought aboard, it is flowed in the hold or botomme of the ship, where beneath by the sea through the chinks of the bords, and above by the mariners, it usually gathereth much dirt. When it is brought hither to us, it is bought and sold by weight, wherfore that it may keep the weight, the Druggifts lay it up in vaults and cellars under ground, where the surface thereof bedewed with much moifuture can faerce escape mouldineffe and rottenneffe. Wherfore I doe not like to give the decoction either of the barke or wood which is next thereto to sick people.
Hift you must have your *Guaícum* shaven into small pieces, and to every pound of the flavings, add of faire water eight, ten, or twelve pints, more or leffe as the nature of the party, and condition of the diseafe shall seeme to require, according to the rule of the formerly mentioned indications. Let the water be hot or warme, especially if it be in Winter, that so it may the more easilly & throughly enter into the body of the wood, & draw into it felle the faculties thereof in the space of twenty four hours, wherein it is morderated, then boyle it in balance, to avoid *empyreuma*, or raftle of fire, which it will contract by bolyling it over a hot fire. Yet none nothing regard this, but thinke the patient fufficiently ferved, if they make a decodion in an earthen pot well glaide, or over a gentle fire, so that no part of the liquour may runne over the mouth of the vef- fel, for that thus so much of the strength of the decodion might vanish away. How- ever it be made, let it be boyled to the conflation of half, a thirt, or fourth part, as the nature of the patient, & diseafe shall seem to require. There be some who make divers simples therewith, which have an occult and proper sim pachy with that part of the body which is chiefly hurt by the diseafe, which at the leaft may serve in stead of a vehicle to carry the faculties of the decodion thither where the diseafe most reigneth. Others addc thereto purging medicines, whose judgement I cannot approve of, for that I thinke it is not for the patients good to attempt two evacuations at once, that is, to expell the humors by sweat by the habit of the body, and by purging by the belly, for that as much urine, fo also much sweat, were little evacuation by foole. For these two motions are contrary, which nature cannot brooke at once. For purging drawes from the circumference to the Centre, but sweat runs a quite contrary course, and is the opinion of many & great physicians. This first decodion being boyled our, & strained the like quantity of water shall be put to the stiffe, or maffe, that so being boyled again without any further infusion, & strained, with the addition of a little cinnamon for the strengthening of the stomacke, the patient may use it at his meales, and betweene his meales, if he be dry, for his ordinar-ly drinke. The quantity of the first decodion to be taken at once, ought to be some five or fixe ounces, and it shall be drunk warm, that so it may be the sooner brought into action, and left the actual coldnede should offend the stomacke, and then the patient being well covered, shall keep himself in bed, and there expect sweat, which, if it come fow on, it shall bee helped forwards with fire bottles filled full of hot water, and put to the foles of the feet. If any parts in the interim shall be much pained, they shall bee comforted by applying of fwiues bladders haffe filled with the fame decodion heated. Neither will it bee unprofitable before the decodion bee drunk, to rubbe over all the body with warme linnen clothes, that by this means the humours may be attenuated, and the pores of the skinnne opened. When he shall have sweated some two hours, the parts oppofite to the grieved places, shall fift bee wiped, then preferently, but more gently, the grieved parts themfelves, left a greater confufion of humours flow thereto. These things being done, he shall keep himfelf in bed, flumming the cold air until he be cooled and come to himfelfe againe, some two hours after, bee fhall fo dine, as the diseafe and his former caufome fhall feme to require; fixe hours after, breaking himfelfe to his bed, bee fhall drink the like quantity of the decodion, and order himfelfe as before. But if he be either weak, or weary of his bed, it fhall bee fufficient to keepe the houfe without lying downe, for although he shall not sweate, yet there will be a great diffipation of the vapours, and veneenate spirits, by infenfiblc tranfpiration; for the *Lues venerea* by the orly communication of thefe, often times catcheth hold, and propagates it elfe in lying with a bedfellow tainted therewith. But as it is requisite to have let blood, and purged the body by the advice of a phylitian, before the taking of the decodion of *Guaícum*, so whileft bee doth take it, it much conduceth to keepe the belly fubfible
Concerning the Lues Venerea. Lib. 19.

...and to preserve the purity of the first venereal by a glycerin, or laxative medicine taken every fifth or sixth day. But for the use of it, we must warily observe, taking indication nor only from the malignity, and contumacy of the disease, but also from the particular nature of the patient, for such as have their body wafted by heat and leanness, and their skinne dry and flakely (whence you may gather a great adution of the humours, and, as it were, a certaine incination of the habit of the body) must more sparingly make use of these things, but rather temper the body by humecting things taken inwardly, and applied outwardly, as bathes, ointments without quicksilver, and other such like things. And then a very weak decoction of Guajema shall be used for a few days before your unction with Quicke-filver. A more plentiful diet, as it draws forth the disease, which of its own nature is long, so a more sparing and slender diet makes the ulcers more rebellious and contumacious, by a hecticke drinck.

Therefore a middle course must be kept, and meats made choice of which are fit, and naturally engendergood and laudible juice in the body. For it is not only great ignorance, but much more cruelty, to goe about to combine all patients without any difference, within the frain allowance of four ounces of Ship-bisket, and twelve damask prunes: for I judge it farre better to diet the patient with Lambe, Veale, Kid, Pullets, fat Larks, and Blacke-birds, as thofe which have a farre greater familiarity with our bodies, than Prunes and the like Junkers. Let his bread be made of white wheate, well leavened, neither too new or tough, neither too old or hard. Let his drinke be made of the maffe, or fittings of the first decoction of Guajema boiled with more water, as was formerly mentioned. Yet if there arife any great weaknesse of the faculties, you may permit the use of some little wine, drinking effectually before each meale a cup of the laft mentioned decoction. Let him avoydtallmeate which may be al altering, and what manner of meat may be allowed.

The manner of diet.

To which, and what manner of wine may be allowed.

The description of...chin.

The preparation of...chin.

Of...chin.

Chap. IX.

Of the second manner of curing the Lues venerea, which is performed by friction, or unction.

He cure of the Lues venerea which is performed by unction and friction is more certaine, yet not in every kinde, condition and season thereof. For if the disease bee inverteate from an humour, tough, groffte, and more tenaciously fixed in the solid parts, as you may gather by the knotty humours of the bones; for then we are so farre from doing any good with a friction used at the firft, that on the contrary we bring the patient in danger of his life, unllest we shall have first prepared the humour to expulsion, by emollient & digerating things first used. But if it be lately taken with movelable paines, pustules, and ulcers in the...
Concerning the Lues Venerea.

Chapter X.

Of the choice, preparation and mixing of Hydragrum.

Hydragrum which is clear, thin, white and fluid, is the best: on the contrary, that which is luid, and not so fluid, is thought to be adulterated by the admixture of some lead. That it may be the purer, straine it through some sheepe's leather, for by preffing it, when it is bound up, it hardeneth through by its subtility, and leaves the kind and leaden droffe behind it on the inside. Then it may be boiled in vinegar with sage, roemeary, time, chamomile, melile, and strained againe, that so many wates cleaned, it may enter into ointments and plasters. To kill it more fully, it shall bee long wrought, and as it were ground in a mortar, that it may bee broken and separated into molt small particles, that by this means it may not bee able to gather it self into the former body: to which purpose you may also add some sulphur, or sublimate, as we shall shew hereafter. It is most usually mixed with hogs greafe, adding thereto some oyde of turpentine, nutmege, cloves, fage, and Aken treacle. If a Eunophlegmatia together with the Lues venerea affect the body, then hot, attenuating, cutting, and drying things shall be added to the medicine, which shall be provided for ointment, the forme shall be done when as we would have it to enter into the substance of the bones. But if the patient be of a cholericke temper, and his blood calle to be inflamed, you shall make choice of little hot, attractive and diffusing things. As when the body shall be replenished with knotty and seirrhous tumours, or fqualide by excessive dryness, then shall emollient and humecting things bee mixed therewith. But that such ointments may have a better confidence, I use to adde to each pound thereof, four, five, or six yolkes of hard egges. Therefore this shall be the forme of the ointment called Vignes. 

R. axung. porci, fbo. olei chamam. anthis, maltech. & laurini, an 3 i. by.

ras. liquid. 5 x. rad. enula, comp. param triis. & obslis, an. 3 ii. pal. euphorbor. 3 8. cinl.

oleri, fbo. bellissim omnia fumil uque ad consumptionem vini, decinde calentur. colatura adbe fthegrau. str. 5 vi. thuris, maltech. an. 3 vi. ref. pini. 3 8. tereb. venet. 3 i. argen.

tius. 3 iv.erea doth. 3 8. liquetefsis oleum. cum cerain corporamentum omnis fumil. flat li.

nimentum adfum. Or ellic. R. argentu vivi preparati. 3 vi. sublimatis. 3 8. falturis.

vivis. 5 i. axung. porci. faltex expertis. 5 x. farrilis otorum sub cineribus corrum. nutili.

olei. tinthus. & laurini. an. 3 ii. theriac. cyc. & methridat. 3 8. flat linimentum ad.

artis eft. You shall compose it thus, first the sublimatum and sulphur shall be finely pou.

ced, then some part of the Argentum vivum and hogs greafe putto them, then presently after, some of the hard yolkes of egges, continually and diligently fitt.

ing and mixing then all together. All the being well incorporate, add some more argentum vivum, hoggges greafe, and yolks of egges, and incorporate them with the former, at the last add the odes, then Trealce, and Mithridate, and fo let them all be beaten together for a whole daies space, and thus you shall make an oint.

ment of a good confidence, which I have often used with good success. Yet the hoggges greafe shall be first boyled with the hot herbes good for the fineses, as fage, roemeary, time, marjorome, lavender, and others which the seafon affords. For fo the axungia acquires a more attenuating faculty, and consolidating of those parts which the Lues venerea afflicts. Besides, when unguments are made for this purpose, that such virulency may be drawne from within outwards, by sweats and transpiration through the pores of the skine, no man need doubt, but that they ought to be fur.

fished with relaxing, ratifying, and attractive faculties. But axungia, besides that it is very fit to kill the argentum vivum, it also relaxeth and mollifeth. Now Oleum lar.

rinum. de fajich. rutanum. sarifie. digesf. and affwage paine. Turpentine also extin.

guifeth
Concerning the Lues Venerea.

IV- Lib. 19.

He body and humours apt to cause or nourish a plethora or inflammation, being prepared by digestive syrups, and evacuated by purging and bleeding as is fitting, according to the direction of some Phylistan, the patient shall be shut up in a parlour or chamber, hot either by nature or art, & free from cold blasts of wind. For cold is not pernicious in this diseaSE, both for that it hurts the nervous parts already ill affected by reason of the disease, as also for that it lessens the efficacy of medicines. Wherefore many doe ill in this, who, whether in winter or summer, anoint their patients in a large room, exposed on every side to the winds. They deal somewhat more wisely, who put a cloath fastened like half a tent presently behind the patient, though anointed by the fire side, so to keep away the cold air from him. Yet it is safest to set, and anoint the patient either in a little roome, or else in some corner of a large roome, separated from the rest of the room by some hangings, and building a stove, or making some fire therein, for so he may stand or sit as he best likes, the longer, and with the least offence, and be equally heated on every side, whereas such as are anointed in a chimney by a fires side cannot but be heated unequally, being ready to burne on the one side, whilst the other is cold, which motions are contrary and hurtfull to that we require: besides, if the patient (hall bee weak, hee cannot stand and endure the heat of the fire. Or if hee be thamefale, he will bee unwilling to shew all his body at once naked to the Surgeon, but he may without any harme, and with modesty, lying on a bed in a little roome, wherein a stove is made, have all his limmes anointed about the joints, and prefently bound up, either with floupes, or carded cotton, or browne paper.

CHAP. XI.

What cautions to be observed in rubbing or anointing the patient.

If the patient shall be anointed or rubbed over with the ointment in the morning, the concoction & distribution of the meat being perfected, which functions otherwise would not be well performed, the powers of nature being distracted into severall operations. Yet if the patient shall be weak, you may some hour before the unction, give him some gelly, the yolk of an egg, or some broath made of meat, boiled to pieces, but very sparingly, left nature, interrupted upon the concoction of solid meats, or in great quantity, should bee drawne away from that which we intend. At first let only the joints of the limmes be anointed, as about the wrists, elbowes, knees, anchorles, shoulders. But afterward, if the patient shall be more strong, and a greater commotion of the humours and body seem necessary, the emunctories of the principall parts may also be anointed, and the whole spine of the backe, yet having much care, and alwaies flowing the principall and noble parts. Left we should doe as those brutaler Emperickes doe, who equally, and in like manner daube and rubbe over all the body, from the soles of the feete, to the crowne of the head: moreover, diligent regard must bee had of those parts, which are feazed upon by the symptomes of this diseaSE, that they may bee more anointed, and that it may bee more thoroughly rubbed in. Yet you must alwaies...
waies begin your anointing or rubbing at those parts which are leefe, offended, left the humours should be drawn out in greater measure to the grieved part. And as gentle frictiions do not sufficiently open the pores of the skin, so more strong and hard ones that them up, cause pain, and more plentifully attract the morbisick matter. Wherefor it will be more convenient to use moderate frictiions, taking indicatioll from the strength of the patient, as that whereof we must still have the chiet regard. There is also another thing whereunto the phystian & Surgeon must diligently attend, as that, which if it be not carefully prevented, will either hinder the death of the patient, or make him subject to a relapse; that is, the quittance of the remedies and unctions, and the number of the frictiions. Which consideratious, together with that which is of the degrees of the temperaments of the whole body, and each part thereoff, much troubles and exerciseth the minde of good Phystians, and maketh the art conjectural, it is so faire from being attained to by Empirickes. Yet we must endeavourse by method and reason, that by the rule of indications so frequently mentioned, we may attaine to the knowledge thereof, as near as may bee. For to have perfect knowledge hereof, and to say that those need only foure, others five, and other some fixe, more or fewer frictiions at the beginning, which Empirckes commonly doe, is a thing both impossible and vain. All these must bee changed and ordered according to the malignity and continuance of the diseafe, and the condition of the affected bodies. Verily we must so long use frictiions and unctions, until the virulent humours bee perfectly evacuated by spitting and salivation, by foule, urine, sweat or incontinent spurreation. Which you may understand by the falling away & drying up of the pultes and ulcers, and the ceasing of the pains and other symptoms proper to this diseafe. In many, by reason of the more dense and compact habit of the body, nature is more flow in excretion. Yet I have learnt by long experience that it is best to anoint and chase such twice in a day, to wit, morning and evening, five hours after meate. For so you shall profit more in one day, than by the single frictiions of three days. But on the contrary, I have often, and with good success, rubbed over but each other day more rare and delicate bodies, giving them one or two dayes rest to recollect their strength, which by the too much dilution of their spirits becoming too weak, were not sufficient to expell the relics of the morbisick matter. And certainly about the end of the appointed friction, especially when as the patients begin to sleepe at the mouth, the bodies, together with the noxious humors are made so fluid by the means of the precedent frictiions, that one friction is then more efficacious than two were at the beginning. Therefore as Galen bids, when as the diseafe is great, and the strength of the patient infirme, that wee should part our blood lettings, and draw a little and a little at once, so also here when as we shall observe nature hurled up, and ready bent to any kind of evacuation by the mouth, soule, or other like, you ought not to use any unction or frictioh other than once in a day, yea certainly it will bee better to intermit for some few dayes. For thus Maffa reports, that there was a certaine man who almost wafted with a consump- tion, being continually afflicted with the most grievous pains of this diseafe, & reputed in a desperate case by other phystians, was notwithstanding at length recovered by him, when as hee had anointed him thirty seven times, putting some time between for the recovery of his strength. I myself have observed others, who thus, by the interposition of one or two dayes, being rubbed over some fifteen or seventeen times, have perfectly recovered. Wherefore you must take this course in resolved and weake bodies, yet in the interim must you have a care, that the frictiions bee not too weak, and so few, that the morbisick cause may not be touched to the quick: for in this kind of diseafe nature doth not of it unless endeavoure any Crisis, or excre¬ tion; it requires the auxilary forces of medicines, by whose assistence it may expell all the malignity. These arc figures of such a Crisis, either at hand, or already present in the morbisick matter. In the patient be so reticile, be so loath all things, that hee cannot remaine in one place standing or lying, hee cannot either eat or drinke, if he be oppressed with a continuall wearineffe, almost ready to fwoone, yet have a good and equall pulse, and gripings in his belly afflct him with bloody & viscos dejections, until at length nature after one or two dayes, portion of the morbisick matter being spent, be somewhat unflagged.

Where to begin the frictiion.

Where is that makes the art of phystic cutectural.

Who must be rubbed over, or who twice in a day, and who but every other day.

Nature is not sufficiently able to expell the viscos morbisick matter. When the patient be so reticile, to loath all things, hee cannot remaine in one place standing or lying, hee cannot eat or drink: if he be oppressed with a continuall wearineffe, almost ready to fwoone, yet have a good and equall pulse, and gripings in his belly afflct him with bloody & viscos dejections, until at length nature after one or two dayes, portion of the morbisick matter being spent, be somewhat freed.
Concerning the Lues Venerea.

Lib. 19.

Irritable clicks of the raorbic fist may flow out of the mouth, or lurking hole, and become worse than before. But we must in like manner have a care left these medicines, that are either given inwardly, or applied outwardly, be not too strong; for by causing such colligation of the radical moisture and solid parts, many have been brought into an incurable confusion. In others fordid and putrid ulcers have then stencil in the mouth, which having eaten a great part of the palate and tongue, have degenerated into a deadly Cancer. In others heretupon the tongue hath so swelled up, that it hath filled the whole capacity of the mouth, so that it could not be banded to any part of the mouth for chewing, whereupon they have by little and little been famished. In other some there hath beene caueld so great colligation of humours, that for a whole moneth after, tough and filthy Eaver hath continually flowed out of their mouths. Other some have the muscles of their jaws relaxed, others troubled with a convulsion, so that during the rest of their lives they can scarce gape. Others by losing a portion of their jaws, have left some of their teeth. But you must not alwaies so long anoint and chase the body, until a flux of the mouth or belly appeare. For you may finde fundry perions, who, if you should anoint or rub them to death, you cannot bring them to fluxe at the mouth; yet these will recover notwithstanding, excretion being made either by insensible transpiration, or evacuation of urine, or some gentle fluxe of the belly, either procured by art, or comming of it selfe. In which case I have observed that many have received much good by a purging decoction of 

\[ \text{Gargarism} \]

administered according to the quantity of the peccant humor, and given for some dayes in the morning, adding thereto white wine, if the body abounded with tough and viscid humours. Dyfenteryes, or bloody fluxes caueld by unctions, may be helped by Glysters, wherein much hogges grate is disloved to round the actuon caused by the medicine and humor which nourisithe the Dylenery. Allo new Treacle dissolved in new milke, is thought wonderfully to mitigate this symptome.

Chap. XIII.

Of the third manner of Cure, which is performed by cerates, and emplasters, as the substantia of unctions.

Or that fundry by reason of the name, abhorre the use of friction, which is performed by the forementioned ointments, therefore there is found another manner of cure, by cerates and emplasters, as substantia of frictions, but that usually is somewhat flower: for which purpose it is not needfull onely to use the things which are described by 

\[ \text{Figs} \]

but you may also devise other, which are more or leffe anodyne, emollient, attenuating, discourting, or drying, according to the condition of the present disease, symptomes, humors and patient, never omitting 

\[ \text{Hydrargyrum} \]

the onely antidote of this disease. Such emplasters mitigate pains and knots, and resolve all hardnesse, and are abolutely very efficuall, for continually sticking to the body, they continually operate. Wherefore they are of prime use in relapses of this disease, or when the humours are thicke and viscuous, or otherwise lyee depe in the body, and very difficult to roote out. But for that they work more slowly oftentimes, such as use them are forced at length to use some frictions to stimulate nature, and cause the speedier excretion. Yet in some whole bodies and humours have beene bained, either by nature or art, the applied emplasters have, in three dayes space procured evacuation sufficient for the disease, so that if they had not beene taken away, they would have caused a colligation, like that which we lately mentioned in two violent friction. Wherefore you shall...
Concerning the Lues Venerea.

shall use the like discretion in taking off these, as you use in yourunctions and frictions. In read of Emp. de Frigo, this following may be fitly used. R. malfaemp. de melis, & exsisteri, &c. argenti evisor exsistin. 3 vi. oleo lauris. & de fisce. educasium ad for- mam emplastri. These plasters must be equally spread upon leather, and laid upon the same places of the joints, as were formerly mentioned in the cure by frictions. Yet some there bee, who cover with the platter all the armes, from the hand even to the shoulder, and all the legges, from the toppe of the knee, even to the ends of the toes, which thing I doe not disallow of, if so be that the places of the joints bee covered over with a thicker platter. They must bee left sticking there so long, untill nature be thirled up and provoked to cause excretion of the virulent humours. Yet if in the interim, great itching shall arise in the parts, you may take them off so long untill the parts shall be fomenced with a decoction of the flowers of chamomile, millelote, red roses, and the like, made in wine, to difcuite that which cau- sed the itching, and then you may lay them on againe. Some, to hinder the rilling of any itch, lay not the bare platter to the part, but cover it over with farccener, to keep it from sticking, and thus intercept the transpiration of the part, the cause of itching. They shall bee stronger or weaker, and lye to the part a longer or shorter space, as long as the indications, so often formerly mentioned, shall seem to require. The effects of emplasters are the same as of frictions, for they cause excretion, one while by insensible transpiration, otherwhiles by a Diarrhoea, or fluxe of the belly, sometimes by urines, but most frequently (which Crises is also most certain) by fa- livation. Sordide and virulent ulcers often breed in the mouth, tongue, pallates, and gums by salivation, by reason of the acrimony of the virulent humours adhering to the sides of the mouth; to hinder the growth of these, many inject glyters made of e- mollient things, especially at the beginning of the salivation, to draw downwards the humours forcibly flying up in greater quantity than is fit, although the part it selfe may endure them.

There are also some, who to the same end give a punging medicine at the very time when as the humours are ready to move upwards, the which I thinke is not a safe course. The cure of such ulcers is farre different from the cure of others. For they ought by no means to bee repurcussd or repelled, how enflamed forever they be, but only to bee mitigated by anodyne gargarifmes, fo openly to leffen the heat, and that by this frequent washing of the mouth, you may hinder the sticking or fur- ring of violide humours to such like ulcers. A decoction of barley, cowes milk warm, held and gargled in the mouth, the mucilages of the seeds of mallows, marsh-mallowes, pflism, lettuce, line extracted in the water of barley, mallows, and pellitory of the wall, are good for this purpose; for thus the ulcers become more milde, and the tenacity of the adherent humours is looseth. You must at the first beware of strong detergent medicines, for almost all such have acrimony joyned with them, which will encreafe the pain, but chiefly in the state of the disease: for so, the ulcers gently cleaned by frequent gargling, would become worfe by the use of acrid things. Therefore it shall be sufficient to make use of the forementioned medicines, so to hinder the encreafe of the fifth, and inflammation of the ulcers, if so bee that such ulcers be not too exceeding malignant and burning. For if it shall happen either by the powerfull efficacy of the applied platters, or by the violence of nature in its motion of the ill humours upwards, that such flore of viéus, and gross humours are carried to the mouth, that it wants little, but that the part it selfe is over-ruled by the morbificke matter, so that by the violence and continuance of the fluxe, the mouth and jawes become fo (welled, that a gangrene is to be feared, by hindering the entrance of the spirits, and extinguihing of the native heat of these parts. In this case wee are forced to leave the proper cure for to withstand the accidents, and for this purpose we use restritive & repelling things, such as are barley water, plantain, night-shade, knot-graffe, shepherds Purue, &c. with syrupe of rofes, violets, quin- ces, berberies, pomegranates, &c. also such are the mucilages and decoctions of the seeds of lettuce, pflism, quinces, plantaine, cucumbers, melons, white poppy, hen-bane, in the waters of rofes, plantaine, night-shade, water-lilies, wood-bine, &c. Alfo it is convenient to procure some by flowers, or the application of any hot and dry
dry things; for thus the humours which run forth of the vessels into all the surface
of the body, are diverted. But when as the course of the humours running to the
mouth is beginning to stoppe, and the tumours and ulcers begin to leaff, then no-
thing hinders, but that we may use gently detergent things, as fr. rescurum socorum,
met. rescurum, Diamon. Dianium, and the like. But when it is time to dry the ul-
cers, they may be lightly touched with a little water, or with aqua fortis, such as gold-
smiths have used for the separation of metals. They may also frequently use dry-
ing gargarifmes made with attraction of the waters of roes, plantain, night-hade,
fishheards purpe, knot grasse, and dogges tongue, boiling therein balaufta. ros. rub.
myrtil. smalam. alumen. acacia. berber. galle. malicor. and the like. During the time of
fluing or salivation you must diet and feed the patient with liquid meats, and those
of good juice, and easie digestion, for that then he can neither chaw, swallow, nor
digest hard things. For nature wholly intent upon the excretion of the noxious and
peccant humours, as also weakened by the bitterneffe of paine, watchings, and un-
quietenefse, and consequently a great resolution of the spirits, cannot influt power-
fully upon the worke of concoction. Therefore he shall be fed with rare new layd
Mani, of ciarc. caudls of the same, barly creames, compots made of a decoction of knuckles
whenthemouth is altered.

To make their
To dry the
To make their

drincken out
aways.

To dry the ulcer of the
mouth.

Maners of ciarc.
whenthe mouth
is altered.

Manners of curing the Lues venerea.

Of the fourth manner of curing the Lues venerea.

One have devised a fourth manner of curing the Lues venerea, which is
by suffusion or fumigations. I doe not much approve hereof, by reason of
lundy maligne symptoms which thence arise, for they infect and cor-
rupt by their venemous contagion, the brains and lungs, by whom they
are primarily and fully received, whence the patients during the refidue
of their lives have thinking breaths. Yea many while they have beene thus handled,
have beene taken hold of by a convulsion, and a trembling of their heads, hands, &
legges, with a deafenesse, apoplexie, and lastly miserable death, by reason of the ma-
ligne vapours of sulphur and quicksilver, whereof cinnabar confists, drawn in
by their mouth, nofe, and all the rest of the body. Wherefore I can never approve
the use of such fumigations which are to bee received in fumes by the mouth and
nostrils for to work upon the whole body; yet I doe not dislike of that, which is
undertaken for some one part onely, as to dry up ill conditioned ulcers, which so afeect
it, that they cannot bee overcome by any other meanes, or for to difperse or digeft
knots, or to resolve fixed paines, otherwise unmovable. These fumigations by rea-

reason
Concerning the Lues Venerea.

The common manner of using them.

The manner of the vesicles filled with hot coales, wherein they plentifully throw Cinnumbaris, that so they may on every side enjoy the rising fume, just after the same manner as Farriers use to smoke their horses for the glanders: they repeat this every day or long, until they begin to fluxe at the mouth. The principal matter or base of such fumigations, as we have already noted, is Cinnumbaris conflagrating of Sulphur and Argentum vivum mixed together, there is added also, radix iris flor. Thuj, obisbanum, myrrha, juncoe adoratus, exs. odorata, mastica, serebthin can. that which have a faculty to resolve and strengthen the spirits, and nature, and correct the fench and evil quality of the Argentum vivum. There are also other fumigations made after another manner, but that also when as the Argentum vivum is extinct, and as it was firit- after this manner, let some lead be melted and let there be powdered or put there to some Argentum vivum, then let it all be pounded, adding thereto Antimony, Aloes, Mastich, coprofe, orpiment, and Benjamin made into powder, and framed into Trochilus with some turpentine. Or else, R. cinnumbaris, 33. cyriacub. et calamus, mes cissus juchat, an. 3. b. benjomi, 3. &. excepte terebthin, 5. trichis pouderti. It to the forefald use. The Serebthin is added to incorporate the dry things, and the gums are added to yield matter to the fume. But virulent ulcers of the Lues venerea shall not be fumigated before they be cleansed, also this following fumigation is good: R. cinnumbaris, 3. benjomi, myrrha, cyriacub. obisbanu, opoparonis, an. 3. &. mastichis, mas cis, thuris, an. 3. exceptimun terebthin, & fas suffumigium.

Chap. XV.

The cure of the phlegmones, or symptomatical effects of the Lues venerea, and of the ulcers of the Yard.

Allous and malignant ulcers in this disease may grow all over the yard, but these are far more malignant which arise on the prepuce, than those that grow on the glans, or nut of the yard. Now they are rebellious to the common medicines of ulcers which happen otherwise, & they are all subject to turn into a gangren: so thatundry, who have not in time provided for themselves by the use of Argentum vivum, are forced for their negligence to suffer the lofe of their glans, and oft times of their whole yard. Yet Iam of opinion that I think we must begin the cure of all ulcers of the yard with the general remedies of ulcers. For all ulcers arising in these parts by reason of copulation, are not virulent. But when as we shall finde that we doe no good by this meanes, and the disease notwithstanding growes worse and worse, then must we come to make use of such things as receive Argentum vivum, that by these we may refist the virulence which is ready to disperfete it selfe over all the body, yet it is absolutely necessaary that all these things be ended with such faculties as may retend the maligne acromy of this venome, such an one is this following collyrium of Lanzfranc. R. rt. &. p. fistil. et plantag. un. quart. i. anagrip. 3. vitris aru. 3. aloes, myrrha, an. 3. terentis substiis, & fas collyrium. Also these ulcers may bee profably touched with mercury water, or aqua fortis which the Goldsmiths have used, or else mercury in powder, or our aggreptimum: but the falling away of the Eichlar shall bee procured with bastucan, or fresh butter. Yet I think it is not firit to use these acid things without very great caution, for fear of a gangren: which easly happens to this part. But if such ulcers be stubborn, that they will not yield to these remedies, then must we come to the friejon orunction of the groines, perrana, & ulcers, with the ointments formerly prescribed for the generall friction. Also fumigations may be made, as wee mentioned in the former chapter. For thus at length the malignity of the virulent humour will be overcome, and the callous hardenesse mollified, and laft-
Concerning the Lues Venerea.

LIB. 19.

by the ulcers themselves cleansed, and being cleansed, consolidated. Sometimes after the perfect cure of such ulcers, there will appeare manifest signes of the Lues venerea in many, which showed not themselves before, for that the virulence flowed forth of the running ulcers, and now this vent being stopp'd, it flows backe into the body, and the worst signes thereof in other parts, and these men have need of a generall unction.

CHAP. XVI.

How a Gonorrhoa differeth from a virulent strangury.

Ven to this day very many have thought that the virulent strangury hath some affinity with the Gonorrhoea of the Ancients, but you shall understand by that which followes, that they are much different. For a Gonorrhoea is an unvoluntary effusion of seed running from the whole body to the genitals, by reason of the resolution and pallacy of the retentive faculty of these parts, as it is delivered by Galen, lib. de loc. effed. This disease befallenth others by the collection of the blood and seminal matter by the vesseles of the whole body, which not turning into fat and good flesh, takes its course to the genitals; but on the contrary, a virulent strangury is a running, or rather dropping out of the urinary passage, of a yellowish, livid, bloody, filthy sauses, like to pus or matter not well concocted, oftentimes fretting and exulcerating the passage with the acrimony, and causing a painfull erection of the yard, and diffusion of all the genital parts. For in this erection there is caufed as it were a convulsive contraction of these parts. And hence it is that the patients complain, that they feel as it were a stinging stretched stifte in that part, which draws the yard as it were downewards. The cause hereof is a groffe and flatulent spirit, filling and distending by its plenty, the whole channel of hollow nerve; yea, verily, the whole porous sub stance of the yard. If to these symptoms this be added, that the urinary passage be exulcerated, a grievous pain afflicts the patient while he makes water, for that the ulcers are irritated by the sharp urine passing that way. Such a virulent strangury or running of the reines oftentimes continueth for two or three yeares space: but the Gonorrhoea, or running of the seed cannot endure so long, but that it will bring the body to an extreme and deadly leanensse, for that the matter of the seed is of the more benigne and laudable portion of the blood, as you may perceive by those who have too immoderately used copulation but the space of one night. For such have their faces more lean and lanke, and the rest of their bodies enervated, languisht and become dull. By this we have delivered, it may be perceived that the running of a virulent strangury, is not the running of a seminal humour, fit for generation of life, but rather of a vicious and acride filth, which hath acquired a venenate malignity by the corruption of the whole substance.

CHAP. XVII.

Of the causes and differences of the scalding or sharpenesse of the urine.

He heat or scalding of the water, which is one kind of the virulent strangury, ariseth from one of these three causes, to wit, repletion, inanition and contagion. That which proceeds from repletion, proceeds either from too great abundance of blood, or by a painfull and tedious journey in the hot sunne, or by feeding upon hot, acride, diuretikke and flatulent meats, causing tension and heat in the urinary parts, whence proceeds the inflammation and the genital parts, whence it happens that not onely a seminal, but also much other moisture may flow unto these parts, but principally the prostatas, which are glandules situate at the roots, or beginning of the necke of the bladder,

*This which our Author is here termed flatulenturina, is the same which by other Authors is usually termed Gonorrhoea, & by us vulgarly in English the running of the reins.
in which place the (permatique vessels end; also abstainence from venery causeth this plentitude in some who have usually had to doe with women, especially the expulsive faculty of the feminall and urinary parts being weak, so that they are not of themselves able to free themselves from this burden. For then the suppressed matter is corrupted, and by its acrimony contracted, by an adventitious and putrescentous heat, it causeth the parts to become ulcerated, the abscess being broken. The purulent fanniess dropping and flowing, and continually alongside, the urinary passage causeth ulcers by the acrimony, which the urine faling upon, exasperates, whence sharp paine, which also continueth for some short time after making of water, and together therewith by reason of the inflammation, the pains affinity, and also the vaporous spirits clition, the yard stands and is contracted with paine, as wee noted in the former chapter. But that which happens through infection, is acquired by the inmoderate and unprofitable use of venery, for hereby the oily and radical moisture of the forementioned glandules is exhausted, which wafted and spent, the urine cannot but be troublesome and sharp by the way to the whole urchra. From which fennie of sharp paine, the feeling of the urine hath its denomination. That which comes by contagion, is caused by impure copulation with an unclean person, or with a woman, which some short while before hath received the tainted seed of a virulent person, or else the whites, or her privities troubled with hidden secreceters, or carrieth a virulent spirit that up or hidden there, which heated and refultuated by copulation, presently infects the whole body with the like contagion, no other situation but the sting of a Scorpion or Phalangium, by casting a little poison into the skinne, presently infects the whole body, the force of the poison spreading further than one would believe, so that the partie falls downe dead in a short time after. Thus therefore the feminall humour contained in the prostatic, is corrupted by the tainture of the ill drawn thence by the yard, and the contagion infects the part it selfe; whence follows an abcess, which causeth forth the virulence by the urinary passage, causeth a virulent strangury; and the maldigne vapour carrying up with some portion of the humour unto the entrailes and principal parts, cause the \textit{Lucus Venerea}.

**Concerning the Lucus Venereaa.**

**Chap. XVIII.**


eee ought not to be negligent or carelesse in curing this affea, for of it proceed pernicious accidents, as we have formerly told you, and neglected, it becomes incurable, so that some have it run out of their urinary passage during their lives; oftentimes to their former misery is added a supplicion of the urine, the prostatic and neck of the bladder being inflamed and unmeasurerably swelld. Copulation, and the use of acrid or flatulent meates encreaseth this inflammation, and altogether therewith causeth an ironuria, or stoppage of the urine; they are worse at the change of the moone; certaine death followeth upon such a stoppage, as I obserued in a certain man, who troubled for ten yeares space with a virulent strangury, at length dyed by the stoppage of his water. He used to be taken with a stopp of his urine, as often as he used any violent exercise, and then he helped himself by putting up a siluer Catheter, which for that purpose he still carried about him; it happened on a certaine time, that he could not thrust it up into his bladder, wherefore he went for me, that I might help him to make water, for which purpose when I had ufed all my skill, it proved in vaine: when he was dead, and his body opened, his bladder was found full and very much distended with urine, but the prostatic prettily unnaturaly swelled, ulcerated, and full of matter, resembling that, which formerly used to run out of his yard, whereby you may gather, that this virulency flows from the prostatic, which runs forth of the yard in a virulent strangury, and not from the

Reines\footnote{uoc}
Concerning the Lues Venerea.

Reines, as many have imagined. Certainly, a virulent strangury, if it be of any long continuance, is to be judged a certain particular Lues venerae, so that it cannot be cured unless by frictions with Hydrargyrum. But the ulcers which pollute the neck of the bladder are easily discerned from these which are in the body or capacity thereof. For in the latter the filth comes away as the patient makes water, and is found mixed with the urine, with certain strings or membranous bodies comming forth in the urine: to these may be added, the farre greater finch of this filth which influch out of the capacity of the bladder. Now must wee treat of the cure of both these diseases, that is, the Gonorhoea and virulent strangury, but first of the former.

CHAP. XIX.

The chiefest heads of curing a Gonorhoea.

For a strangury occasioned by repression.

For the decay of the retentive faculty.

CHAP. XX.

The general cure both of the scalding of the water, and the virulent strangury.

For a strangury occasioned by repression.

For the decay of the retentive faculty.

Pills.
Concerning the Lues Venerea.

I. &B.19.

The proper cure of a virulent strangury.

For we must begin with the mitigation of paine, and staying the inflammation, which shall be performed by making injection into the urethra with this following decoction warme. R. sem. pellis, lati va, papaver, albi, plantago, elen, limi, hyoscyani albi, an. 1 li. distribuantur mucorum in aqua solani & rofar. ad quantitatem sufficientem. addite troches alburni Rhuscamphoratorum in pollinum redactum, 1 st. mifee famil, & fist injecto frequens. For this because it hath a refrigerating faculty, will help the inflammation, mitigate pain, and by the mucilaginous faculty lenify the humours. Having used the before said ointments or the like, let them be melted over the fire, but have a care that you make them not too hot, lest they should lose their refrigerating quality, which is the thing we chiefly desire in them. Having used the before said ointments, it will be convenient to apply thereupon some linnen clothes moistened in water compounded ex aqua plantaginis, eli ani, temperos, rofarum, and the like. If the patient be tormented with intolerable paine in making water, and also some small time after, as it commonly commeth to paife, I would with him that he should make water putting his yard into a chamber-pot filled with milk or water warmed. The paine by this means being asswaged, we must come to the cleansing of the ulcers by this or the like injection. R. hydromelitr simp. 3d. syr. de rosto ficcis, & de ab. festh, an. 3 li. fist injecto. But if there be need of more powerful detection, you may safely add, as I have frequently tried, a little egyptianum. I have also found this following decoction to bee very good for this purpose. R. vini albi olericert, 1b. aq. aquar, plantag. & rof. an. 3 li. auripigmenti, 3 li. viridis adri, 3 st. aloes opt. 3 li. pulv. pulv. pulv. & buillants famil. Keep the decoction for to make injection withall. You may encrease or diminish the quantity and force of the ingredients entering into this composition, as the patient and disease shall seeme to require. The ulcers being thus cleansed, we must hasten to dry them, so that we may at length cicatrize them. This may be done by drying up the superfuous moisture, and strengtheing the parts that are moistened and relaxed by the continual defluxion, for which purpose...
Concerning the Lues Venerea.

post this following decoction is very profitable. \( \text{R. aq. sabinum, th i. phlorum, } \\
\text{balsam. numum cupre. equamtiaturum, an. 3 i. semin. siumach, } \\
\text{et berber, an. 3 ii. syrup. } \\
\text{res, & de ihv. ian. 3 i. tint decoction. You may keep it for an injection to be often } \\
\text{injected into the urethra with a syringe, so long as there shall no matter or filth } \\
\text{flow out thereat, for then there is certain hope of the cure.}

CHAP. XXII.

Of Caruncles, or small excrescences which sometimes happen to grow in the Urethra, by the heat or scalding of the urine.

Sharpe humour which flows from the Glandules termed Prostate, and continually runs along the urethra in some places by the way it frets, and exculcates by the acrimony the urethra in men, but the neck of the womb in women. In these, as also is usuall in other ulcers, there sometimes grows up a superfluous flesh, which oft times hinders the cutting or comming forth of the seed & urine by their appropriate and common passage, whence many mischiefes arise; whence it is that such ulcers as have caruncles growing upon them must be diligently cured. But first we must know whether they be new or old. For the latter are more difficultly to bee cured than the former, because the caruncles that grow upon them become callous and hard, being oft times cicatriz'd. We know that there are caruncles, if the urine cannot freely passe along the passage of the urine, but finds so many stops in the way as it meets with caruncles that stop the passage; if the patient can hardly make water, or if his water runne in a very small stream, or two streams, or crookedly, or onely by drops and drops, with such tormenting paine that he is ready to let goe his excrements, yea and oft times doth so, after the same manner as such are troubled with the stone in the bladder. After making water, as also after copulation, some portion of the urine and seed stayes at the rough places of the carunclcs, so that the patient is forced to press his yard, to preffe forth such reliqucs. Sometimces the urine is wholly stopped, whence proceeds such diffention of the bladder, that it causeth inflammation, and the urine flowing backe into the body, hastens the death of the patient. Yet sometimes the urine thus suppreft, sweats forth preternaturaliy in sundry places, as at the fundament, perinaun, cod, yard, groines. As foon as we, by any of the forementioned signes, shall fuppect that there is a Caruncle about to grow, it is expedient forthwith to use means for the cure thereof, for a caruncle from a very little beginning doth in a short time grow to bigge, that at the length it becomes incurable, verily you may easily giffle at the difficulty of the cure by that we have formerly delivered of thefeffence hereof, besides medicines can very hardly arrive thereat. The fittest feason for the undertaking thereof is the spring, and the next thereto is winter; yet if it be very troublesome, you must delay no time. Whilste the cure is in hand, the patient ought wholly to abstain from venery, for by the use thereof, the kidneys, spermacieke veffer, profate, and the whole yard, twell up and waxe hot, and consequently draw to them from the neighbouring and upper parts, whence abundance of excrements in the affected parts, much hindering the cure. You must bere of acid and corroding things in the use of detergent injecions, for that thus the urethra being endued with moft exquisite fesse, may bee easilly offended, whence might ensuing many and ill accidents. Neither must wee be frighted if at some times we fee blood flow forth of secret or hidden caruncles. For this helps to shorten the cure, because the disease is hindered from growth, by taking away portion of the conjunct matter, the part also it selfe is caged from the oppressing burden, for the matterall cause of caruncles is superficial blood. Wherfore unless such bleeding happen of it selfe, it is not amisse to procure it by thrufing in a Catheter somewhat hard, yet with good advice. If the Caruncles be inverteate, and callous, then must they be mollified by fomentations, ointments, camphrases, plasters, and fumigations; you may thus make fomentation, \( \text{R. rad. aub. et lisiere. ab. an. 3 iv. rad. brazia, } \\
\text{et c.}

The fucceft time for the cure. Way venere meth be here.

The prudential cure.

A fomentation.
Concerning the Lues Venerea.

a., & incidenta incidentur. includ. omnia in aqua communis: make a tincture, and
apply it with lact sponges. Of the malle of the strained-out things, you may make a
cataplasm after this manner. R. past. mater. mater. & tragi. mater. add. A cataplasm
among a porc. anguens basilecinus. an. 311. flat. cataplasm: let it be applied present-
ly after the tincture. You may use this following liniment whilst the catap-
foronor. an. 31. but. recentis. olei littor. & cham. an. 31. liquif. simul. addendo
app. sua. 31. flat. limen. limen: let it be applied outwardly upon the part where-
in the Cramoles are. For the same purpose plaster shall be applied, which
may be diversifie, and fitted as you shall thinke good; yet Emplastrum de Vega
people empl. shall be effeclfully applied to fence the

A ascen. 

The following fumigation is also good for the same purpose; take
some pieces of a mille-stone (for this use useth the pyrites mentioned by
the Ancients) or else some Brickes of a large size, after they are heated hot in the
fire; let them be put into a pan, and set under a clofe ftoole, then caufe the patient
to go to use mild, as if he were going to flooole; then pour upon the hot stones e-
equal parts of very hotte vinegar, and very good aqua vite, and casting clothes
about him, that nothing may exhale in vain: let him receive the ascending va-
por at his head. Erem. Petram, Sieram. & Heslora. Moreover, that this me-
dicine may work the better effect, you may put the Patient naked into the Barrell
noted with this letter A. so that he may fit upon a stone or bode perforated on that
part, whereas his Genitores are, then place the pan holding the hot stones between
his legges, then presently sprinkle the stones with the before-mentioned liquor, by
the doore marked with the letter, B. Thus the Patient shall easily receive the same
that exhales therefrom, and none thereof be left, he covering and vailing himself:
A Glac. ib. on every side. Such a fumigation, in Galem. opinion, hath a faculty to penetrate, cut,

Chap.
Particular dec.

Particular dose of the Lues venerea not to be used unless by consent of the Lues venerea, but to be used otherwise by the surgeon, for the general advice of the disease, or the vitality.

Caruncles if callous, must first be softened.

**CHAP. XXIII.**

What other remedies shall be used to Caruncles occasioned by the Lues venerea.

**BUT** if you suspect that these Caruncles come or are occasioned by a violent humour, or the malignity of the Lues venerea, it is meet that the patient observe such a diet as usually is prescribed to such as are troubled with the Lues venerea, let him use a decoction of Guaiaicum, and let the perineum and the whole yard be anointed with ointment made for the Lues venerea; otherwise the surgeon will lose his labour. In the interim whilst he shall sweat in his bed, he shall be wished to hold between his legs a stone bottle filled with hot water, or else a hot brick wrapped in linen cloathes, moistened in vinegar and aqua viva, for thus the heat and vapour will ascend to the genitals, which, together with the help of the applied ointment, will dissolve the matter of the Caruncles, and being thus softened, they must be confumned with convenient medicines. Wherefore first if they become callous, or cicatrized (which you may suspect if they call forth no excrementitious humidity) they shall be exasperated, excoriated and torn with a leaden Catheter having a rough button at the end like a round file. He shall so long use the Catheter put into the Urethra, thrufhing it up and down the same way so long and often as he shall thinke fit for the breaking and tearing the Caruncles, hee shall permit them thus torn to bleed freely, so to ease the affected part. You may also for the same purpose put into the Urethra the Catheter marked with this letter A, whereinto putting a silver wire sharp at the upper end, that by often thrufhing it in and out, it may wear and make plain the resisting caruncles. Verily by this means I have helped many much perplexed with the tearfull danger of this disease. Some better like of the Catheter marked with the letter A, being thus used: it is thrust into the Urethra with the prominent cutting sides downwards, and then pressing the yard on the outside close with your hand to the Catheter in the place where the Caruncles are, it is drawn forth againe.

*Cathaters fit to wear e under, or tear Caruncles.*

A. showeth the Catheter with the infected silver wire, but not hanging forth thereat.

B. showeth the Catheter with the infected silver wire hanging forth at the end.

The thus torn Caruncle shall be strawed over with the following pouder, being very effectual to waste and consume all Caruncles of the privities without much paine. *R. herb. laba. in umbra exsiccato. 5 ii. or e, antimon. tub. pr. paras. an. 5 B. flat pale. substissimus, let it be applied in the following manner. Put the powder into*
Concerning the Lues Venerea

the pipe or Catheter having holes in the sides thereof, which is the lowermost of the last described. Then put the Catheter into the urinary passagie untill the slit or openneffe of the fide come to the Caruncle, then into the hollowneffe of the Catheter put a filver wire, wrapped about the end with a little linen ragge, which as it is thruf up, will alfo thruf up the pouder therewith, untill it fhall come to the slit againft the caruncle, then will it adhere to the caruncle, bloody by reason of the late attirition. Then fhall you draw forth the Catheter,ifttwining it about, that fo it may not scrape off the pouder againe. If inofferable paine hereupon happen, it fhall bee awaft, and the inflammation restrained by the following injecition. R. ficorosum portulaca, planiga, solani, & temporevi, an. 5 b. album ovorum, mi. vi. agitator dixit in mortario plumbo; be it bee infected warme into the urethra with a lyinge. In stead hereof you may alfo make ufe of another injecition, which is formerly prefcribed.

Neither will it be unprofitable to apply repercufives to the genitalls, to hinder pain and inflammation. You may alfo ufe other medicines, having a faculty to confume the Caruncle, amongst which thefe following are excellent, R. arsenicis, urina, &c. vint. Rom. aluminum roc. an. 8 ii. infundatur omnia in acetum acerrimo, atque inter duo marmora in polihem redigatur; then let it bee expofed to the fummer fonne, and dyed, againe infufed in tharp vinegar, and then as before grown upon a mable, fo that you fhall finde nothing harpe with your fingers, laftly let it bee oppofed to the fonne untill it may bee made into most fubtle pouder, and all the acrimony be vaniflied, which will be commonly in eight dayes space. Then, R. ol. rofat. 5 iv. hydragyri; 5 ii. coqua potius, quod foque coqua in emplast. solida confitant, in ignem, ab igneum fumus, addi pulv. pratidi. 5 ii, let them bee mixed with a spatula, and put upon the furface untill it come to fo hard a confiftence, that it will dife a waxe candle, or lead wire, fo that it may not come off by handling with your hands. The Surgeons of Montpelier, ufe this medicine: This following is another, R. lapidem calamin. lotumpeftas ovoi ufta, &c. vint. rubrum; corticem granat. commune omnia in pollinem; let this pouder be ufed with a waxe candle, joyned to a foome like thing. Alfo firings dr rods of lead thruft into the bladder as thickc with the paflage will fuffer, even to the ulcers, being firft bemeared with quicksilver, and kept in day and night as long as the patient can endure, are good to be ufed. For the caruncle fhall bee in hand by these following medicines, let the patient bee cautious that he fo shake his yard after making water, that he may shake forth all the remaines of the urine which may chance to ftoppe at the Caruncles; for if but one dropp be left at the afce, it would bee sufficient to fpoile the whole operation of the applied medicines. After that the Caruncle fhall bee wonne away, and wholly confirmed by the described medicines, which you may know by the urine flowing forth freely, and in a full freame, and by thrufting up a Catheter into the bladder with out any foppage; then it remains that the ulcers be drye & cicatrizd, for which purpofe the following injecotion is very powerfull and effectuall, and withoutry acrimony. R. aqua fabrorum b, muc. cupreif, gallar. cort. granat. an. 5 i. pul. foliae, ova, vint. Rom. calcin. pul, mer. an. 8 omnia liquefcant fumul ad dielum omen.

Whileft the cure fhall bee in hand by thefe following medicines, let the patient bee careful that he fo shake his yard after making water, that he may shake forth all the reliques of the urine which may chance to ftoppe at the Caruncles; for it but one dropp should stay there, it would bee sufficient to fpoile the whole operation of the applied medicines. After that the Caruncle fhall bee wonne away, and wholly confumed by the described medicines, which you may know by the urine flowing forth freely, and in a full freame, and by thrufting up a Catheter into the bladder with out any foppage, then it remains that the ulcers be drye & cicatrizd, for which purpofe the following injecotion is very powerfull and effectuall, and withoutry acrimony. R. aqua fabrorum b, muc. cupreif, gallar. cort. granat. an. 5 i. pul. foliae, ova, vint. Rom. calcin. pul, mer. an. 8 omnia liquefcant fumul ad dielum omen.

An emplaster ufed by the Surgeons of Montpelier for Caruncles.

An injection to hinder inflammation.

Caution in beholding water.
Concerning the Lues Venerea.

he virulence of the Lues venerea is sometimes communicated to the Liver, which if it have a powerful expulsive faculty, it expels it into the groines, as the proper emunctories thereof, whence proceed venereal Bubo’s. The matter of these for the most part is a abundance of cold, tough, and vitious humours, as you may gather by the hardness and whiteness of the tumour, the pravity of the pain, and conumacy of curing; which also is another reason, besides these that we formerly mentioned, why the virulence of this disease may bee thought commonly to fasten it selfe in a phlegmaticke humour. Yet sometimes venereal Bubo’s proceed from a hot, acrid and cholericke humour, associated with great pain and heat, and which therupon often degenerate into violent & corroding ulcers. Some venereal Bubo’s are such conjoint accidents of the Lues venerea, that they foretell it; such are those which for a small while shew a manifest tumour, and suddenly without any manifest occasion hide themselves again, and returne backe to the noble parts. Others are distinct from the Lues venerea though they have a similitude of office and matter therewith, and which therefore may be healed, the Lues venerea yet remaining uncured. Such are these which are usuallie seen, and which therefore compared with the former may be termed simple and not implicit. For the cure, you must not use diffusifmg medicines, lest resolving the more subtle part, the grofer dregs become impast and concrete there; but much lesse must we use repercussive, for that the matter is virolious. Wherefore once attractive and suppuring medicines are here to bee used, agreeable to the humour predominant and causing the tumour, as more hot things in edematous and scirrhous tumours, than in those which resemble the nature of a phlegmon or erysipelas; the indication taken from the rarity and densitie of bodies infinuates the same variety. The applying of cupping elasses is very effectuall to draw it forth. But when as it is drawn forth, you shall forthwith apply an emplastick medicine, and then you shall come into fuppuratives. When the tumour is ripe it shall be opened with a potential cautery, if it proceed from a cold cause; for by the inducing of heat the residue of the crude matter is more easilly concocced, besides when as an ulcer of this kind is opened, the matter will bee more easilly evacuated, neither shall it bee fit to use any tent, but only to apply pledgets. The residue of the cure shall bee performed by detergent medicines, and then if need require, the patient shall be let blood, and the humours evacuated by a purging medicine, but not before the perfect maturity thereof.

Chap. XXV.

of the Exostosis, bunches or knots growing upon the bones by reason of the Lues Venerea.

And Tumours, Exostoses and knots have their matter from thicke and tough phlegme, which cannot be dissolved, unless by hot medicines, which have a mollifying & dissolving faculty. For which purpose, besides those medicines which usuallie are applied to cicrrous tumours, you must also make use of arg. vitri, commonly after this manner. Rs. empl. filis Bachi. & Cerum. am. 3iii. emphors. 3i. emplast. de vigo, 2ii. ceras asfip. descript. Philagr. 3i. argent. vori extinct. 3i. has emplast. Spread it upon leather for your use. In the mean time let the patient observe a sparing dyet, if thus bee shall bee helped,
Concerning the Lues Venerea.

747

**Why the bones become rotten, and by what signs it may be perceived.**

**Hat solution of Continuity which is in the bones, is called by Galen, Ca.**

Galen. *Cogitame. This usually is the cause of rottenness; for, bones that are
gashed, bruised, rent, perforated, broken, luxated, inflamed and dispoiled of
the flesh and skin, are easily corrupted; for dispoiled of their covering,
they are altered by the appulse of the aire, which they formerly never
felt, whence also their blood and proper nourishment is dried up and exhausted.
Beside also, the same running down by reason of wounds and old ulcers, in pro-
cess of time, faetens is gashed into their substance, and putrefies by little and little; this
putrefaction is increased and caused by the too much use of oily and fatty medicines,
as moist and suppurate things; for hence the ulcer becomes more filthy and mal-
ligne, the flesh of the neighbouring parts growing hot, is turned into putr, which pre-
cently falling upon the bone lying under it, inflames it. Lastly, the bones are sub-
ject to the same diseases, as the flesh that lieth under them is; besides also accord-
ing to Galen, the beginning of inflammation oft-times proceeds from the bones;
but they beat not, because, according to the opinion of the ancients, pulsation is a
dolorisck motion of the Arteries, but the bones want sense. Which verily I can-
don not deny, but also we must confesse that the membrane that encompasseth them, and
the arteries that enter into their body, are endued with most exquisite sense. Where-
fore the arteries comprized and waxing hot by reason of the inflamed bone, cause
a sense of pain in the periostium, so that the patients complain of a dull and deep
paine, as it were funke into the substance of the bones. The rottenness or corrupti-
on is oft-times manifest to the eye, as when the bone is laid bare, for then it variceth
from the natural colour, and becomes livid, yellowish or black. Otherwise you
may perceive it by touch, as by searching it with a probe, as when you meet with a-
ny inequality or roughness, or when by but gently touching it, your probe runs in-
to the substance of the bone, as into rotten wood, for a bone is naturally hard, but
being rotten, becomes soft. Yet hardness is not an infallible signe of a found bone.
For I have seen rotten and bared bones, to have sometimis growne so hard, by the
appulse of the aire, that a Trepan could not, without a strong endeavoure, enter them.
Also the rottenness of the bones is known by the condition of the flesh which flowes
forth of the ulcer, for it is not onely more thin and liquid, but also more flinking.
Furthermore, such ulcers have a soft, loose and watery flesh; besides also, they are un-
toward and rebellious to sartocick and epulotick medicines; to which if they chance
to yeeld and be cicatrized, yet within a short while after the scarre will rellent of its
own accord, for that nature, defitute of the firm and found foundation of the bones,
cannot build up a laudable and constant flesh. Neither is it sufficient that the Surge-
on know certainly that the bone is rotten and corrupt, it is furthermore fite he know,
whether this corruption be supercificie, or pierce deep into the substance of the
bone, that he may know how much of the bone must bee scalded. For scalling is the
onely cure of that which is corrupted; now it is scalded by that which dryes ex-

Rrr
Concerning the Lues Veneræa.

ceedingly, and draws forth all the humidity, as well the excrementitious, as the alimentary. For thus it remains without blood and nourishment, and consequently life also; whence it must of necessity scale or fall off, being defirute of the glue or moisture which joined it to the sound parts in vicinity and communion of life, like as leaves which fall away from the trees, the humidity being exhausted, by which, as by glue, they adhered to the boughs. For this purpose Catagamaick powders are prepared to amend the corruption which is one

ly superficiai. R. pul. aloes, creta commun., pompholyx, an. 3. s. irce flor. aris. olæch. rot. myrrh. coriæ, an. 3. pul. a. cor. combust. 38. ter. antur subliss. flat. pulvis. let it bee applied either alone by it selfe, or else with hony and a little aqua vites. Also the following emplaster being applied, stirs up nature to the exclusion of the broken bones, and cleanseth the ulcers from the more groffe and viscid partes. R. cer. nov. res. pin. gom. ammon. & clem. an. 5. tereb. 3. pul. mafric. myrrb. an. 38. aris. olæch. irce. flor. aloes. oppan. euphorb. an. 5. oleœ refati quantum sufficit. flat. emplast. secundum. artem. Euphorb. biam. according to Dioscorides, takes off the scales of bones in one day. Hereof also conduceth Emp. de betonica. Or, R. oleœ corysphyl. 38. camp. 3. mul. masca. antur simul in mortario, & alio. But if that part of the bone which is corrupt can not thus be taken away, then must you use the scaling Trepanns and Scrapers described formerly in wounds of the head, especially if any more great or solid bone bee foule. Furthermore the here described Trepan will be good to perforate the rotten bone in many places where it is corrupt, untill, as it were, a certaine bloody moisture issue forth at the holes: for thus it more freely enjoys the aire, and also the force of the medicines admitted by these holes works more powerfully.

A Trepan with two triangular bits & a pin so hold them in the stocks: as also another Trepan having foure square & sixe square bits comwe. infent for to be used in the rottenneffe of greater bones.

If the rottenneffe be more deep, and the bone more hard, either by nature or accident, as by the occasion of the too long admision of the airc, then the rotten sccales shall bee cut off by the instruments described in wounds of the head, driving them into the bone with leaden mallets, left the part should bee too much offended or shaken with the blow. The scailles and fragments shall bee taken forth with mullets, the signes that all the rottenneffe is taken away, are the solidinesse of the bone thereunder, and the bloody moisture sweating out thereof.

Signes that the rottenneffe is taken away.
Of actual & potential Cauteries.

But if the described remedies cannot take place, by reason of the malignity or magnitude of the rottenness, then must we come to actual and potential cauteries. But I should rather approve of actual, because by strengthening the part, they consume the excrementitious humours wherewith it is overcharged, to wit, the matter of the Caries, which is not so effectually performed by potential cauteries. Yet are we oft-times forced to use these, to please the patients which are terrified at and afraid of hot irons. Potential Cauteries are aqua fortis, aqua vitrioli, scalding oyle, melted sulphur and boiling, and the like; in pouring on of which I would have the Surgeon to bee prudent and industrious, lest he should rashly violate the neighbouring found parts by the burning touch of these things; which his tenuity would cause vehement paines, inflammations and other horrid symptoms. For actual cauteries, their variety in figure is so great, that it cannot be defined, much lefse set downe in writing; for they must be varied according to the largeness of the rottenness, and the figure and formation of the fouled bones. Such as are more usuall I have thought good here to delineate unto you, content onely to admonish you thus much, that some of these work by pricking, some by cutting, some flatwise, and other some with their points made to the forme of an Olive leaf.

Sundry forms of actual Cauteries fit in all necessary cases of all parts.
The following figure of a Cautery is fit for virulent knots that arise in the skull, when you desire to take away the flesh that covers the bone; for this purpose it is made hollow and sharp in a triangular and quadrangular forme, divided as it were into three branches, that you may so make use of which you please.
The Cauteries whose forms are hereafter express'd take place in rotten bones that lye deep in, wherein you cannot make use of the formerly described without touching of the neighbouring found parts. To avoid which danger you shall put your Cautery even to the bone through an iron pipe, which may keep the neighbouring and flethy parts from burning.

All such Cauteries with their pipes.

Great discommodities ensue upon too rash, that is, too frequently applied Cauterizes, or too long adhering to the bone, for by this immoderate and fiery heat not only the excrementitious humour of the rotten bone is consumed; but also the radical and substantial moisture of the part is exhausted, wherein alone nature, endeavouring to cast off the corrupt scables, and fave the found from the rotten bone, and to substitute flesh, stands and consists. Whereof, the measure of applying of Cauterizes ought to be taken from the greatneffe of the rotteneffe, and the excrementitious, or after a manner foaming humidity sweating through the pores of the bone. But before you preffe your cautery into the rotten bone which lies very deep in, as that which happens in the thigh bone, and upon other very flethy parts, you must diligently defend the neighbouring, found and flethy parts, as if were with a covering, for that the humour diffused by the touch of the fire, burns the other places whereunto it diffuseth it selfe like falding oyle. After the cauterization you must help towards the falling away of the scables, by sometimes dropping in our oyle of whelpes, being made falding hot. This oyle, though very fit for this purpose, yet doe I not judge it fit to use it too often, it may suffie to have dropped it in some twice or thrice. For at length it may violate the found bone, that lyes under the rotten, by the oyle, jubile and moist substance. Furthermore, a bone is the moist dry part of the body, therefore unctionous and moist medicines are contrary to its temper and constellence. But it conduceth often and gently to move the scables alread
Concerning the Lues Venerea.

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Concerning the Lues Venerea.

Scabious.
Sarcinela.
Bangle.
Montif. aure.
Burnet.
Madder.
Tanfie.
Tops of hams.
Tops of Brambles.
Sower bread.
Comfort the greater and lesser.
Feroinie.
Bifforne.
Neguvarie.
Periswine.
Century.
Adders tongue.
Betonie.
Carduan benedictur.
The cardinal flowers.
Arzfolochia, or Birth-wurt.
Speedwell.
Agrimony.

The sepalpars.
Herbe Roberts.
Doves foot.
Dogges tongue.
Avens.
Prunella.
Ofum
Clary.
Gentian.
Hermia.
Red Calewurt or Cabbage.
Scordium.
Cates mints.
Cinque foile.
River Crabs.
Mace.
Bolearmenick.
Return or Tobacco.
Mead, sweet.
Coles, foot.
Dandelion.
Plantaine.
St. Johns worte.

Of all these the Surgeon shall make choice according to the mind and judgement of the Phylician, such as he shall thinke fit and proper to every ulcer or wound, or to each wounded and ulcerated part, according to the condition of the time, the temper of the patient and kinde or nature of the distaste. You may make drinks nor onely of the decoctions of these, but also of their juices in white wine, or arronet, which are good nor onely to purifie the masse of the bloud, to cleanse fanguine, virulent, filthy and differenterious ulcers, but also to drive away putrefaction, seale bones, dissolve clotted bloud in bruises, to draw, placce out and exterminate all strange bodies, as I have often observed to my great admiration. They are composd usuallly after this manner. Ri. favi. bugii. sebip. boron. cord. meper. ao. m. b. vucr. mund. sem. hyper. & card. ben. ao. st. trium for. cord. ao. p. ii. coquastur complete in aq. communis. posca in fit. ne addes visi aib. mel. refo. & cinnam. quad foefin. fin decutio. coleter per manicam. Let him drink five in the morning 3 hours before dinner. You may also with good success make injections with the same liquor into fistulous and fungous ulcers, as also to wash the for did ulcers therewith. You may also boile the same simples, as herbs, flowers and seeds in the patients broths, that so they may acquire a medicinable and nourishing Faculty. For the time of the affect, wherein you may with good success make use of these, we have read in Guide, that he used not to prescribe these potions to his patients when as they were newly wounded, for that they commonly are composd of things hot and opening, which heat and attenuate the bloud, whence there would be danger of a defluxion, upon the affected part. Wherefore when the matter is come to supputation, when as there nothing remains, but to cleanse the ulcer and fill it with flesh, no inflammation as now remaining in the part, I judge these potions may then be used with good success.
Concerning the Lues Venerea.

Chap. XXIX.

Of Tetter, Ring-wormes or Chops occasioned by the Lues venerea.

Upon the cure of the Lues venerea, usually Tetter and Chops happen thereof, which make furrows in the palms of the hands & soles of the feet. They acquire their matter from salt phlegme, or ait choler, or the relics of the venereal virulency sent thither. The cure especially when the disease is grown old, is difficult, by reason that the humour hath long accustomede to flow in that way, & for that it hath corrupted the habit of the part by the continual distillation. But the cure is more easy if the disease be newly bred. Now you may know it is newly bred by the redness, accompanied by a great itching, and not only a drying of the skin, but also a thickness & denseness thereof. That which is old, besides the fore-mentioned signs, have feally & branlike hardnesses conjoined therewith, which by scratching & rubbing cast off scales. For general medicines, the dexter of the liver & habit of the body must be corrected, which by the occasion of the former disease & remedies apt to inflame the blood, cannot but much swerve from their native temper. This may be done by diet conveniently appointed, by purging and altering medicines, bleeding, bathing, applying of cupping-glasses and horns. For topick or particular medicines, wash such as are newly or lately bred with the following water which dries and is of subtle parts. Then make thereof a decoction, & drain it through an hypocras bag, then put thereto some rennet, let them be well mixed together in a mortar, and hence with let the hands be rubbed or washed. Or, let them be incorporated & make a liniment to use to the part. If to this you addle sublimated & prepared, as women use for their faces, you shall make it more effectual. Others take burnt alum made into powder, and incorporated with the yolk of an egg, the juice of Citrons, and a little aloes dissolved in oxymel stellucum.

Chap. XXX.

Of curing the Lues Venerea in infants and little children.

Nanns oft-times conceive the seeds of this disease in the wombs of their mothers, and are borne infected therewith; but this cannot enter above all the bodies, infecting with the like disease as many nurses as give them suck; they scarce ever recover thereof, for that they contracted the disease from their first conformation. But such as are somewhat bigger, if they chance to catch the disease after they are born by sucking from infected nurses, or by any other occasion or kind of contagion, often times receive cure. For first, you shall cause the nurse to use the aqua herbae which hereunder is described, for the space of 20 or more days, that so the may the better arm her self against the contagion of this disease, & yield milk which may have the faculty both of meat and medicine, she shall be careful as often as she gives the child suck, to wash and dry her teat or pap, left the virulence...
Concerning the Lues Venerea.

Concerning the Lues Venerea.

Vulnerancy that the child breathes out at his mouth, be impacted in the little holes of the breast through which the milk flows out. Now the pulsates of little children shall be anointed with some ointment that receives argentum venum in some small quantity, as argentum enulatum cum mercurio, or the like. Then shall it be swathed or bound up in swaddles and clothes aired with the formerly described fumigations. For the rest, it shall be kept as warm as you can in some warm place. Thefe & the like must be done not in one continued course, but at several seasons, otherwise it is to be feared, that it would cause ulcers to arise in the mouth, or else salivation. If any ulcers arise in the mouth and spread therein, they shall be touched with the formerly described waters, but made somewhat weaker, having regard to the tender age of the patient; if the infant shall get this disease of its nurse, let the nurse be presently changed, for it being otherwise nourished with tainted and virulent blood, can never be healed. Many have by these means recovered; but such as have persisted, have not persisted by the default of medicines, but by the malignity and vehemency of the disease.

A description of the aqua Theriacalis, or treacle water formerly mentioned.


heder. & baccar. lauri an. 3 ii. lycraphil. & maci an. 3 ii. qui. citri fuchuro condit. conf. ref. ambros. cichor. buglos. borag. an. 3 ii. conf. annula camp. theriac. cot. & methrid. an. 3 ii. distill them all in balneo Maria after the following manner. Let the Guajacum bee infused in equal parts of wine and the aforementioned waters for the space of twelve hours, and the residue of the things in that which remains of the same wine and wares for five hours space, beating such things as may require it, then let them be mixed altogether, that the liquor may be endowed with all their faculties. Which that it may be the more effectually performed, let them be boiled, put up in glasse bottles closely stopped for some three or four hours space, in a large kettle filled with boiling water, then let them be put into a glasse alembicke, and so distilled. Give 3 iv. of this distilled liquor at once, being aromatized with 3i. of cinamon, and 3. of Diamargarits, and 3. 6. of sugar, to give it a pleasing taste. Such a drinke doth not only remove the virulence of the Lues venerea, but strengthens the noble parts. Rendeletius makes an aqua theriacalis after this manner. R. theriac. vet. lb. i. acetof. m iii. rad. gram. 3 iii. pulse. card. ben. an. m ii. flor. chamam. p ii. com. perematrum omnia in vino albo, & disleftentur in vase vitrio; referve the water for use; whereof let the patient take 3 ii. with 3 iii. of forrell and bugloff water. The wine this to be done when he shall enter into bed or at a table; for to this distilled liquor will cause sweat more easily, and mitigate paine, whether given by it itself, or with a decoction of Gromine, or of Chyma, or burre-docke roots; yet if the patient bee of a phlegmaticke constitution, hee shall use a decoction of Guajacum in stead of a decoction of chyma, for it penetrates more speedily, by reason of its subdety, of parts, and also expells the dolorificke matter.
OF THE SMALL POCKS AND MEAZLES:

OF WORMES AND THE LEPROSIE.

THE TWENTIETH BOOK.

OF THE CAUSES OF THE SMALL POCKS AND MEAZLES.

Or that the small Pocks and Meazles are diseases, which usually are forerunners and foretellers of the plague, not only by the corruption of humours, but oft times by default of the aire; moreover, for that wormes are oft times generated in the plague, have thought good to write of these things, to the end that by this treatise the young Surgeon may be more amply and perfectly instructed in that pestilent disease. Also I have thought good to treat of the Leprosie as being the offspring of the highest corruption of humours in the body. Now the small pocks are puttes, and the meazels spots which arise in the top of the skin by reason of the impurity of the corrupt blood sent thereto by the force of nature. Most of the Antients have delivered that this impurity is the relics of the menstrual blood remaining in the body of the infant, being of that matter from whence it drew nourishment in the womb, which lying still or quiet for some space of time, but stirred up at the first opportunity of a hotter summer, or a southerly or rainy season, or a hidden malignity in the air, and boiling up, or working with the whole male of the blood, spread themselves upon the whole surface of the body. An argument hereof is, there are few or none who have not been troubled with this disease, at least once in their lives, which when it begins to work in itself, not content to set upon some one, it commonly leaseth upon more: now commonly there is as much difference between the small pocks and meazles, as there is between a Carbuncle and a pestilent Bub. For the small pocks are of a more grosse and vicious matter, to wit, of a phlegmaticke humour. But the meazels of a more subtle and hot, that is, a cholericke matter, therefore this yeilds no marks thereof, but certaine small spots without any tumour, and these either red, purple, or blacke. But the small pocks are exuberating puttes, white in the midst, but red in the circumference, an argument of blood mixed with cholera. Wherefore small pocks and Meazles are.

Their matter.
Concerning the Small Pocks,

What the Measles doe not.

Concerning the Small Pocks, & Measles.

What grievous and pernicious sym plays may happen by the small Pockes.

Concerning the Small Pocks, & Measles.

Chap. II.

Of the cure of the Small Pockes and Measles.
up in a cloth. She shall then all lafe, spiced and baked meates, and in head of wine drinke a decoction of liquorice, rafions, and torrell roots. She shall also purge medicinable, as if the were sick of the same diseafe, that so her urine may become medicinable. Lastly, shee shall observe the same diet as is usuall prescrib'd to such as have the plague. You shall give the child no pappe, or give it any, let it bee very little. But if the child be weaned, let him abstaine from flesh, untill the feaver. The child must have left him, and the pocks be fully come forth: in head of flesh let him feed on barley and almond creames, chicken brothes, wherein the fore named herbes have beene boiled, pownadoes, gellies, culaffes, prunes and rafions. Let his drinke be a grissian made of French barley, grafle and torrell roots, or with a nodula containing the foure cold feeds, the pulpe of prunes and rafions, with the thavings of Ivory and hard-home. Betweene meales the fame decoction may be mixed with some syrupe of violets, but not of roles or any other astringent syrupe, lest we hinder the course and inclination of the humour outwards. Let his sleepe be moderate; for too found sleepe draws back the matter to the center, and encreaseth the feaver; you must neither purge, nor draw bloud the diseafe increasing or being at the height, unlefe peradventure there bee a great plaenitude, or else the diseafe complicate with other, as with a pleurisy, inflammation of the eyes, or a quinacnic which require it, left the motion of nature should be disturbed; but you shall thinke it sufficient to loofe the belly with a gentle glyster: but when the height of the diseafe is over, and in the declension thereof, you may with Caffia or some stronger medicine evacuate part of the humours and the reliques of the diseafe. But in the fiate and increafe it is better to use sudorifticks, which by attenuating the humours and relaxing the pores of the skin may drive the caufe of the diseafe from the center to the circumference, which otherwise refting in the body might bee a caufe of death; as I and Richard Hubert & mylory, observed in two inaides, whereof one was foure, and the other feventeen yeares old; for we dischiring them both being dead, found their entrailes covered with scabby or crustated pociiles, like those that break forth upon the skin. We must not thinke that a bleeding at nofe at the beginning of the diseafe, or in the firft foure or five dayes should carry away the matter and originall of the diseafe, for neverthelss the pocks will come forth; but for that this is a true and natural critis of this diseafe, as that which is carri'd to the furface and circumference of the body, such bleeding muft not be stopp'd, unlefe you feare it will caufe fowing. The matter shall bee drawne out with a decoction of figs, husked lentils, citron feeds, the feeds of fenil, paffif, filmalage, roots of grafle, rafions and dates. For such a decoction, certainly it have power to caufe sweat, hath also a faculty to fend forth unto the skin the morbusick humour; the feeds of fenil and the like opening things relaxe and open the pores of the skin, frages lenifie the thermoide of the matter, and gently cleanse, the lentils keepe the jawes and throat, and all the inward parts from pusiles, and hinder a fluxe by reacon of their moderate astringtion, but having their huskes on, they would bind more than is required in the diseafe; dates are thought to comfort the stomack, and citron feeds to defend the heart from malignity, liquorice to smooth the thor, and hinder hoarfnes and caufe sweat. But these things shall be given long after meat, for it is not fit to sweat presently after meat; some there bee who would have the child wrapped in linnen clothes steeped in this decoction being hor, and afterwards hard wringing forth. Yet I had rather to use bladders or spunges, or hot bricks for the fame purpose; certainly a decoction of millet, figges and rafions, with some sugar, causeth sweat powerfully. Neither is it amifs; whilst the patient is covered in all other parts of his body, and sweats, to fan his face, for thus the native heat is kept in & so strengthened, and fainting hindred, and a greater excrution of excrementious humours caufed. To which purpose you may also put now and then to the patients nose a nodula made with a little vinegar & water of roles, camphire, the powder of fanders, and other odoriferous things which have a cooling faculty, this also will keepe the nofe from pusiles.
Concerning the Small Pocks,

Lib. 20.

Chap. III.

What parts must be armed against, and preserved from the Pocks.

He eyes, nofe, throte, lungs, and inward parts ought to be kept freer from the eruption of puffles than the other parts; for that their nature and constitution is more obnoxious to the malignity of this virulence, and they are easiplier corrupted and blemished. Therefore left the eyes should be hurt, you must defend them when you first begin to suspect the disease, with the eyelids, also moistening them with rose-water, verjuice or vinegar, and a little Camphire. There are some also who for this purpose make a decoction of Sumach, berberry, seeds, pomgranate pills, aloe, and a little saffron; the juice of lowre pomgranates, and the water of the whites of eggs dropped in with rose-water, are good for the same purpose; also women's milk mixed with rose-water and often renewed, and lastly, all such things as have a repercussive quality. Yet if the eyes be much inflamed and red, you shall not use repercussives alone, but mixe therewith diffuifiers and cleaners, such as are made by a familiarity of nature to strengthen the fight; and let these bee tempered with some fennel or eye-bright water. Then the patient shall not looke upon the light or red things for feare of paine and inflammation; wherefore are in the state of the disease when the pain and inflammation of the eyes are at their height, gently drying and diffuissive things properly conducing to the eyes are most convenient, as washed aloes, tutsy and Antimonic in the water of fennel, eye bright and roses. The formerly mentioned nodulus will preferve the nose, and linen clothes dipped in the fore-said astringent decoction, put into the nostrils and outwardly applied. We shall defend the jawes, throtte, and throat, and preserve the integrity of the voice by a gargle of oxy crate, or the juice of sowre pomgranates, holding also the grains of them in their mouths, and often rouling them up & down therein, as alfo by nodula's of the seeds of pilium, quinces & the like cold & astringent things. We must provide for the lungs & respiration by syrups of jubes, violers, roses, white poppys, pomgranates, water-illies, and the like. Now when as the pocks are thoroughly come forth, then may you permit the patient to use somewhat a freer diet, and you must wholly busie yourelfe in ripening and evacuating the matter, drying and scaling them. But for the meazels, they are cured by resolution only, and not by suppuration; the pocks may be ripened by annoying them with fresh butter, by fomenting them with a decoction of the roots of mallow, lilies, figs, line-seeds and the like. After they are ripe, they shall have their heads clipped off with a pairof fizzers, or else bee opened with a golden or silver needle, left the matter contained in them, should corrode the flesh that lies under, and after the cure, leave the prats or pockholes behind it, which would cause some deformity; the pus, or matter being evacuated, they shall be dryed up with a gentile, rofes, adding thereto cerufle, lirghare, aloes and a little saffron in powder; for these have not onely a faculty to dry, but also to regenerate flesh; for the same purpose the flour of barley and lupines are dissolved or mixed with rose-water, and the affected parts annoyed therewith with a fine linen ragge; some anoint them with the extract of bacon boiled in water and wine, then presently throw upon them the flour of barley or lupines, or both of them. Others mixe crude hony newly taken from the comb, with barley flour, and therewithall anoint the puffles so to dry them; being dryed up like a seare or scab, they annoy them with oyle of roses, violers, almonds, or else with some creame, that they may the sooner fall away, the puffles being broken; tedious itchings follicle the patients to scratch, whence happens excoration and filthy ulcers, for scratching is the occasion of greater attraction. Wherfore you shall bind the sick child's hands, and foment the itching parts with a decoction of marth mallowes, barley and lupines, with the addition of some salt. But if it bee already excoriated, then shall you heal it with a gentile, album camphurae, adding thereto a little powder of Aloes or Cinnabar, or a little desicationum rubrum. But notwithstanding all your application of repelling medicines,
pufles neverthelesse break forth at the eyes, then must they be diligently cured with all manner of Cutiaria, having a care that the inflammation of that part grow not to that bignes, as to break the eies, \\

& that which somtimes happens to drive them forth of their proper orbres. If any crusty ulcers arise in the mouth, palate, and throat, with hoariness and difficulty of swallowing, may be helped by gar- \\
garises made with barly water, the waters of plantain and cherwill, with some ly- \\
rupe of red roses, or Diamond dissolved therein, the patient shall hold in his mouth \\

sugar of roses or the tablets of The Pockarres left in Tohd the un- \\

the face, if they bunch out undecently, shall be clipped away with a pair of fizzers, and then anointed with fresh ungunt. citrin, or else with this liniment. R., amyli \\

trusti, & amygdalorum excorticatum, an. 5 lb. gum, tragacanth. 8 lb. semen melonum, \\
saburum. ficcarum excorticata. farina bordei, an. 8 lb. Let them all bee made into fine \\
powder, and then incorporated with rofe-water, and so make a liniment, wherewith \\

they face with a feather, let it be wiped away in the morning, washing the \\
face with some water and wheaten bran, to allo conduct to laez. virginalis. Goole, \\
ducks and Capons grese are good to smooth the roughneffe of the skin, as also oile \\
of lillias, hares blood of one newly killed and horse is good to fill and plaine, as allo \\
when the Pock-holes, if they bee often rubbed therewith. In fted hereof many \\

the face of Bacon rubbed woman thereon, allo the distillled waters of beane \\

flowers, lilly roots, reed roots, egg-shell, and oile of eggs are thought very prevalent \\
to wafe and smoothe the Pock-aires.

A Discourse of certaine monstrous creatures which breed against nature in the \\

bodies of men, women, and little children, which may serve as an \\

induction to the ensuing discourse of worms.

As in the macrocosmos or bigger world, fo in the microcosmos or lesser world there \\

are winds, thunders, earthquakes, showres, inundations of waters, sterilities, fertili- \\
ties, stones, mountaines and fundry forms of fruits and creatures thence arife. For \\

who can deny but that there is wind contained flut up in flatulent abrccs, and in \\
the guts of those that are troubled with the choly, Flatulencies make so great a \\
noye in divers women's bellies, if fo be you stand near them, that you would think \\
you heard a great number of frogs croaking on the night time: That water is con-

ained in watery abceses, and the belly of such as have the drop sic, is manifested by 
that cure which is testifed by the letting forth of the water; in fits of Agues the 
whole body is no otherwise shaken and trembles, than the earth when it is heard to 
bellow, and felt to shake under our feet. He which shall fee the stones which are ta- 

ken out of the bladder, & come from the kidnies and divers other parts of the bodie, 

cannot deny but that stones are generated in our bodies. Furthermore wee fee both 
men & women who in their lace, or some other parts, shew the impreffion, or imprim-
ted figure of a cherry, plum, service,fig, mulberry & the like fruit, the caufe hereof is 
thought to be the power of the imagination concurring with the formative faculty, 
and the tenderneffe of the yealding and waxe-like embryon, cafee to be brought into 
any forme or figure by reason of the proper and native humidity. For you shall find 
that all their mothers whilst they went with them have earnestly deired or longed 
for such things, which, whilst they have too earnestly aspirated in their mides, they 
have tranferred the shape unto the child, whilst that they could not enjoy the 
things themselves. Now who can deny but that bunches on the backe, and large 
wens resemble mountaines? Who can gainst, but that fqualid fertility may bee 
affimulated to the heathick dryness of wafted and consumed perfons? and fertility de-
ciphered by the body dilated with much flesh and fat, so that the legs can scarce 
stand under the burden of the belly? But thar divers creatures are generated in one 
creature, that is, in man, and that in fundry parts of him, the following histories shall 
mak it evident.

Hollerius tells that a certaine Italian by frequent smelling to the herbe Basilie had 
Scorpion bred in his braine, which caused long and vehement paine, and at length 

death:
It makes Hollaris conjecture of the cause and original of this Scorpion, probable for that Chrysiopus, Dyphanes and Pliny write, that of basil beaten betweene two stones, and laid in the sun, there will come Scorpions.

Fernelius writes that in a certaine fouldier, who was flat nosed, upon the too long restraint or stoppage of a certaine filthy matter that flowed out of the nose, that there were generated two hairy worms of the bignesse of ones finger, which at length made him mad, he had no manifext fever, and he died about the twentieth day: this was their shape, by as much as we can gather by Fernelius his words.

Lowes Durst a man of great learning and credit, told mee that hee had come forth with his urine, after a long and difficult disease, a quick creature of colour red, but otherwise like in shape a Millepes, that is, a Chefllope, or Hog-louce.

Count Charles of Mansfield, last summer troubled with a grievous and continual fever, in the duke of Gloucester's place cast forth a filthy matter at his yard, in the shape of a live thing almost just in this forme.
Monstrous creatures also of sundry formes are also generated in the wombes of women; sometimes alone, otherwhiles with amola, and sometimes with a child naturally and well made, as frogs, toads, serpents, lizards: which therefore the Ancients have termed the Lumbards brethren, for that it was usual with their women, that together with their natural and perfect issue they brought into the world worms, serpents, and monstrous creatures of that kind generated in their wombes, for that they alwayes more respected the decking of their bodies, than they did their diet. For it happened whilest they fed on fruits, weeds and trash, and such things as were of ill juice, they generated a putrific matter, or certainly very subject to putrefaction and corruption, and consequently opportune to generate such unper-\textit{fected} creatures. Nonbertus telleth that there were two Italian women, that in one moneth brought forth each of them a monstrous birth; the one that married a Tailor, brought forth a thing so little, that is resembled a Rat without a tail; but the other a Gentlewoman, brought forth a larger, for it was of the bignesse of a Cat; both of them were black, and as soone as they came out of the wombe, they ran up high on the wall, and held fast thereon with their nailes. Licosthenes writes that in Anno Dom. 1494. a woman at Cracovia, in the streete which taketh name from the holy Ghost, was delivere of a dead child, who had a serpent fastned upon his back, which fed upon this dead child, as you perceive by this following figure.

\textbf{The figure of a serpent fastned to a child.}

\textit{Levius Lemnius} tels a very straunge history to this purpofe. Some few yeares agone (faith he) a certaine woman of the Ile in Flanders, which being with child by a Sailer, her belly swelled up so speedily, that it seemed shee would not bee able to carry her burden to the terme precribed by nature; her ninth moneth being ended, she calleth a midwife, and presently after strong throwes and paines, shee first brought forth a deformed lump of fleeth, having as it were two handles on the sides, stretched forth to the length and manner of armes, and it moved and panted with a certaine vitall motion, after the manner of spunges and sea-nestles; but afterwards there came forth of her wombe a monster with a crooked nofe, a long and round necke, terrible eyes, a sharpe taine, and wonderfull quick of the feet, it was shaped much after this manner.
As soon as it came into the light it filled the whole room with a noise and hissing, running to every side to find out a lurking hole wherein to hide its head, but the women which were present, with a joint consent fell upon it, and imothered it with cushions, at length the poor woman wearied with long travell, was delivered of a boy, but so evily entreated and handled by this monster, that it died as soon as it was christened.

Corneilius Gemma a Physician of Louaine, telleth that there were many very monstrous and strange things cast forth both upwards and downwards out of the belly of a certaine maid of Louaine, of the age of fifteen yeares. Amongst the rest, the cast forth at her fundament, together with her excrements, a living creature some foot and halfe long, thicker than ones thumbe, very like an eele, but that it had a very hairy talle; I have here given you the figure of the monster as it was expressed by him.

The figure of a monster that came forth of a maidens belly.

Mafter Peter Barque and Claude le Grand, Surgeons of Verdun, lately affirmed to mee that they cured the wife of a certayne Citizen of Verdun, which out of an Abfeesse broken in the belly, cast forth a great number of wormes, together with the quittance, and these were of the thicknesse of ones finger, with sharp heads, which so gnawed her guts, that the excrements for a long time came forth at the ulcer, but now she is perfectly recovered.

Anthony Benenius a Physician of Florence telleth that one John Menusferus, a man of forty yeares of age, troubled with continual paines at his stomacke, was often at the point of death, neither found he any helpe by the counsels of many Physicians which hee used. At length comming to have his advice, hee gave him a vomit, by meanes whereof hee cast up a great quantity of corrupt and putrid matter, yet was hee not thereby eated of his pains. Therefore he gave him another vomit, by force whereof he cast up much matter like to the former, and together therewith a worme of foure fingers long, having a red round head, of the bignesse of a great peafe, covered over the body with a soft downiness, with a forked talle, in manner of an halfe moone, going upon foure feet, two before, and two behind.
Why should I mention the prodigious bodies which are found in Abscesses, as stones, chalke, sand, coales, snails, chokes, strawes, hay, hornes, haires, and many kinds of living and dead creatures? For there is nothing in the generation of these things (caused by corruption, preceded by much alteration) which may make us admire, or hold us in suspense, especially if we shall consider that nature, the fruitful parent of all things, hath put divers portions and particles of the universal matter whereof the greater world is composèd into this meiotocosmos, or little world, man; whereby he might the rather seem to be made to the resemblance and form of the greater. Wherefore it so doth in its selfe here, that it may counterfeit and re semble all the actions and motions which it useth to performe in the scene of the greater world, in this little one, so to be that matter be not wanting.

**CHAP. III.**

**of the wormes which use to breed in the guts.**

Grotes, vilecide and crude humour is the material cause of wormes, which having got the beginning of corruption in the stomacke, is quickly carri ed into the guts, and there it putrefies, having not acquired the forme of laudible chylus in the first concoction. This, for that it is vilecide, tenaci ously adheres to the guts, neither is it easily evacuated with the other excre ments; therefore by delay it further putrefies, & by the efficacy of heat, it turns into the mater and nourishment for wormes. This alimentary humour being consumed, unless some fresh supply the want thereof, which may eafe their hunger, they move them selves, in the guts with great violence, they cause grievous and great paines, ye, and sometim es they creep up to the stomack, and so come forth by the mouth, and somet imes they ascend into the holes of the palate, and come forth at the nose. Wormes are of three sorts; for some are round & long, others broad and long, others short & slender. The first are called by the Ancients, Teires, that is, round; for that they are long and round. The secon d are named Temia, for that their bodies are long & broad like a rowler or fwarthe. The third are termed Ascariides, for that they commonly wrap themselves up round. Other differences of wormes are taken from their colours, as red, white, black, th-coloured, yellowish. Some also are hairy, with a great head like the little fish which the French call Chabot, we, a Millers-thumbe; in some diseases many wormes are generated and cast forth by the fundament, as small as haires, and usually of colour white, and these are they which are called Ascariides. The diversity of colours in wormes proceedeth not from the like distinct diversity of humours whereof they are generated. For the melancholick and cholericke humour by their qualities are wholly unfit to generate wormes. But this manifold variety in colour, is by reason of the different corruption of the chylous or phlegmaticke humour whereof they are bred. The long and broad wormes are oftentimes stretched along all the guts, being like to a mucous or albuminous substance, and verily I Aibury.

Saw one voided by a woman, which was like to a serpent, and some five foote long; which ought not to seeme strange, seeing it is noted by the Ancients, that they have seene wormes so long, as the length of the whole guts, that is, seven times the length
Concerning the Small Pocks,

A bilhar.

Valerio affirmed that he saw a worme above nine foote long. Now as wormes differ in shape, so are their places of generation also different. For the round and long wormes are commonly generated in the smaller guts, the rest in the greater, but especially the \textit{Ancylostoma} none breed in the stomacke, as that which is the place of the first conception. Theretruely the matter which breedeth these wormes, gets the first rudiment of corruption, but comes to perfection only in the guts; they breed in some infants in their mothers bellies, by the pravity and corrupt nature of the humour flowing from the mother for the nourishment of the childe, which for that then they do not expell it by siege, it by decay pureareth the more, and yeildes fir matter for the breeding of wormes, as some have observed out of \textit{Hippocrates},

Lastly, wormes breed in people of any age that are belly-gods and given to gluttony, as also in such as feed upon meat of ill juice, and apt to corrupt, as crude summer fruits, cheese, and milke-meates. But to know in what part of the Guts the wormes doe lurk, you must note, that when they are in the small guts, the patients complain of a paine in their stomacke, with a dogge-like appetite, whereby they require many and severall things without reason, a great part of the nourishment being consumed by the wormes lying there; they are also subject to often tainting, by reason of the sympathy which the stomacke, being a part of most exquisite sense, hath with the heart, the nofe itches, the breath flinkes, by reason of the exhalations fent up from the meat corrupting in the stomacke; through which occasion they are also given to sleep, but are now and then waked therefrom by fitdaine startings and feares; they are held with a continued and slow seaver, a dry cough, a winking with their eielids, and often changing of the colour of their faces. But long and broad wormes, being the inmates of the greater guts, shew themselves by stooles remplisshed with many floughes, here and there resembelng the seeds of a Musk-melon or cucumber. \textit{Ancylostoma} are knowne by the itching they cause in the fundament, causing a feafe as if it were Ants running up and downe; causing also \textit{stenaemus}, and falling downe of the fundament. This is the cause of all these symptoms, their fleete is turbulent and often clamorous, when a hot, acride and subtle vapors, raised by the wormes from the like humor and their foodes, are fent up to the head; but found sleep by the contrary, as when a milly vapour is fent up from a groffe and cold matter. They dream they eate in their fleece, for that while the wormes doe more greedily consume the chylous matter in the guts, they flirre up the feafe of the like action in the phantaie. They grate or gnash their teeth by reason of a certaine convulsifick repletion, the muscles of the temples and jaws being diftempered by plenty of vapours. A dry cough comes by the content of the vitall parts serving for respiration, which the naturally, to wit, the \textit{Diaphragma} or midriff, fmit upon by acride vapours, and irriatted as though there were some humour to bee expelled by coughing. These same acride fumes
meules affailing the orifice of the ventricle, cause either a hicketing, or else a fainting, according to the quality of their confinement, grosse or thin; these carried up to the parts of the face cause an itching of the nofe, a darknefe of the figh, and a fuddaine changing of the colour in the cheeks. Great worms are worfe than little ones, red than white, living than dead, many than few, variegated than those of one colour, as thofe which are signes of a greater corruption. Such as are cast forth bloo dy and sprinkled with blood, are deadly, for they shew that the fubftance of the guts is eaten funder; for oft-times they correde and perforate the body of the gut wherein they are contained, and thence penetrate into divers parts of the belly, fo that they have come forth atimes at the Navell, having eaten themselves a paffege forth, as Horelius affirmeth. When as children troubled with the worms draw their breath with difficulty, and waxe moist over all their bodies, it is a signe that death is at hand. If at the beginning of harpe feavers, round worms come forth alive, it is a signe of a perifhent feaver, the malignity of whose matter they could not endure, but were forced to come forth. But if they be cast forth dead, they are signes of greater corruption in the humours, and of a more venenate malignity.

C H A P. V.

What cure to be used for the Wormes.

In this difeafe there is but one indication, that is, the exclusion or casting out of the wormes, either alive or dead, forth of the body, as being fuch that in their whole kinde are againft nature; all things must bee fhunned which are apt to heap up putrefaftion in the body by their corruption, fuch as are crude fruits, cheefe, milke-meats, fishes, and lutfy fuch things as are of a difficult and hard digestion, but prone to corruption. Pappe is fit for children, for that they require moist things; but these ought to anfwer in a certaine fimilitude to the fubftance and thicknefe of milke, that they may the more easily be condcated & affimulat ed, & fuch only is that pap which is made with wheaten flour, not crude, but baked in an oven, that the pappe made therewith may not be too vi ficde nor thicke, if it fhould onely bee boyled in a panne as much as the milke would re quire, or elfe the milke would bee too terreftiriall, or too waterifh, all the fatty portion thereof being resolved, the cheefy and wharhifh portion remaining, if it fhould boile fo much as were neceffary for the full boile of the crude meate; they which were made otherwife in pappe yeild matter for the generating of groffe and vi ficde humours in the stomacke, whence happens obftraction in the ftreine veins and fub ftance of the liver, by obftraction wormes breathe in the guts, and the ftones in the kidneys and bladder. The patient muft be fed often, and with meates of good juife, left the worms through want of nourifhment, fhould gnaw the fubftance of the guts. Now when as fuch things breed of a putridate matter, the patient shall be purged, and the putrefaftion repreft by medicines mentioned in our treatife of the pia iue. For the quick killing and casting of them forth, fyrup of Succory, or or Lamonnes with rubarbe, a little Trecacle, or Mithridate, is a fingular medicine, if there be no fever. You may alfo for the fame purpofe ufe this following medicinal. Ros cornu cervi pl. ranfr, erbor, an. 516, fem. tanacet. & contra verm. an. 51, fuit dextro hepar quadriaf, in colatura infindebti optimi, an. 31, cinam. 31, diffele fyrup fub abfynthii 3, ende a potion, give it in the morning three hours before any breath. Oyl of Olives drinke, kills wormes, as alfo water of knot-grafe drinke with milke, and in like manner all bitter things. Yet I could firi with them to give a glyfter made of milke, honey and sugar, without oyles and bitter things, left fhunning thereof, they move the lower guts, and come upwards, for this is naturall to wormes, to fhunne bitter things, and follow sweet things. Whence you may leerne, that to the bitter things which you give by the mouth, you must alwayes mixe fweet things, thar allured by the sweetnefe, they may devour them more greedily, that so they may kill them. Therefore I
Concerning the Small Pockes.

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Concerning the Small Pockes.

would with milke and Sugar, mixe the fees of centaury, rue, worme wood, aloes, and the like: harts-horne is very effectuall against wormes, wherefore you may in-
fufe the thavings thereof in the water or drinke that the patient drinkes, as also to
botile same thereof in his brothas. So also treacle drunke or taken in broth, killeth
the wormes; punlaine boile in brothes, and deftilled and drunke, is also good a-
gainst the wormes, as also succory and mints, also a decoction of the leffer house-leaf
and feblettens given with fugar before meate; it is no leffe effectuall to put wormes-
feeds in their pap, and in roasted apples, and fo to give them it. Also you may make
suppositories after this manner, and put them up into the fundament. R. Corallis sub-
altaris, raphani, coriander, cornicularius, tierices an. 3. II. meliulus 3. II. aqua centimodia q. f.

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A short description of the Elephantiasis or Leprosie, and of the causes thereof.

This disease is termed Elephantiasis because the skin of such as are troubled therewith, is rough, scabious, wrinkled and unequal, like the skin of an Elephant. Yet this name may seem to be imposed thereon by reason of the greatness of the disease. Some from the opinion of the Arabians have termed it Leprosia or Leprosie (but improperly, for the Lepros is a kind of Scab and disease of the skin, which is vulgarly called Malum sancti manis) which word for the present we will use, as that which prevails by custom and antiquity.

Now the Leprosie (according to Paulus) is a Cancer of the whole body, the which 2 (as Avicen adds) corrupts the complexion, forme and figure of the members. Galen thinks the cause ariseth from the error of the sanctifying faculty, through whose default the assimulation in the flesse and habite of the body is depraved, and much changed from it selfe, and the rule of nature. But ad Glaucomem he defines this disease, An effusion of troubled or gross blood into the veins and habit of the whole body. This disease is judged great, for that it partakes of a certaine venenate virulency, depraving the members and comelinesse of the whole body. Now it appears that the Leprosie partakes of a certaine venenate virulency by this, that such are melancholicke in the whole habit of their bodies, are not leprous. Now this disease is composed of three differences of diseases. First it consists of a distemper against nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceasing, and the heat dispersed, it becomes cold and dry, which is the conjunct cause of this symptom. Also it consists of an evil composition or conformation, for that it depraves the figure and beauty of the parts. Also it consists of a solution of continuity, when as the flesse and skin are cleft in divers parts with ulcers and chops; the leprosie hath for the most part 3, general causes, that is, the primitive, antecedent, & conjunct: the primitive cause is either from the first conception, who was conceived of depraved & corrupt menstruous blood, & such as are melancholicke in the whole habit of their bodies, are not leprous. Now this disease is caused of three differences of diseases. First it consists of a distemper against nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceasing, and the heat dispersed, it becomes cold and dry, which is the conjunct cause of this symptom. Also it consists of an evil composition or conformation, for that it depraves the figure and beauty of the parts. Also it consists of a solution of continuity, when as the flesse and skin are cleft in divers parts with ulcers and chops; the leprosie hath for the most part 3, general causes, that is, the primitive, antecedent, & conjunct: the primitive cause is either from the first conception, or comes to them after they are born. It is thought to be in him from the first conception, who was conceived of depraved & corrupt menstruous blood, & such as are melancholicke in the whole habit of their bodies, are not leprous. Now this disease is composed of three differences of diseases. First it consists of a distemper against nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceasing, and the heat dispersed, it becomes cold and dry, which is the conjunct cause of this symptom. Also it consists of an evil composition or conformation, for that it depraves the figure and beauty of the parts. Also it consists of a solution of continuity, when as the flesse and skin are cleft in divers parts with ulcers and chops; the leprosie hath for the most part 3, general causes, that is, the primitive, antecedent, & conjunct: the primitive cause is either from the first conception, or comes to them after they are born. It is thought to be in him from the first conception, who was conceived of depraved & corrupt menstruous blood, & such as are melancholicke in the whole habit of their bodies, are not leprous. Now this disease is composed of three differences of diseases. First it consists of a distemper against nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceasing, and the heat dispersed, it becomes cold and dry, which is the conjunct cause of this symptom. Also it consists of an evil composition or conformation, for that it depraves the figure and beauty of the parts. Also it consists of a solution of continuity, when as the flesse and skin are cleft in divers parts with ulcers and chops; the leprosie hath for the most part 3, general causes, that is, the primitive, antecedent, & conjunct: the primitive cause is either from the first conception, or comes to them after they are born. It is thought to be in him from the first conception, who was conceived of depraved & corrupt menstruous blood, & such as are melancholicke in the whole habit of their bodies, are not leprous.
Concerning the Small Pocks, Lib. 20.

The antecedent cause of a Leprofie.

The conjunct cause. How it comes to be deadly.

The beginning of a Leprofie.

The encroachment. The state and declension. The beginning is when as the malignity hath not yet gone further than the inner parts and bowels, whereupon the strength must needs be more languid. The encroachment is when as the virulence comes forth, & the signs & symptoms are every day encrasted in number & strength. The state is when as the members are exulcerated. The declension is, when as the face of the body, corrupting and destroying it first by a hot and dry distemper, be deadly, and dry, contrary to the beginnings of life. For hence inevitable death must ensue, because our life consists in the moderation of heat and moisture.

Chap. VII.

The signs of a Leprofie, breeding, present, and already confirmed.

He disposition of the body and humors to a Leprofie is shewed by the change of the native and fresh colour of the face, by that aspect of the face, which is commonly called cadavera facie, & blackish suffusions and pustules, the falling away of the haires, a great thirst, and a drinke of the mouth both by day & night, a flinking breath, little ulcers in the mouth, the change of the voice to hoarseness, a desire of vomit above nature and custom. Now there are four times of this disease, the beginning, encroast, state and declension. The beginning is when as the malignity hath not yet gone further than the inner parts and bowells, whereupon the strength must needs be more languid. The encroachment is when as the virulence comes forth, & the signs & symptoms are every day encrasted in number & strength. The state is when as the members are exulcerated. The declension is, when as the aspect of the face is horrid, the extreme parts fall away by the profundity and malignity of the ulcers, so that none, no not of the common sort of people, can doubt of the disease. According to the doctrine of the Antients, we must in searching out of the signs of this disease being present, have chief regard to the head. For the signs of diseases more properly and truly shew themselves in the face, by reason of the softness and rarity of the substance thereof, and the tenour of the skin that covers it; wherefore a blacke and adult humour diffus'd thereunder, easily shewes it selfe, and that not onely by the mutation of the colour, but also of the character and bulk, and oft times by manifest hurting it. Wherefore you must observe in the head whether it have scabs, and whether in the place of those haires that are fallen away, others more tender, short and rare grow up, which is like to happen through defect of perfect nourishment to preserve and generate hair, through corruption of the hairy scalp that should bestored with such nourishment, and of the habit itselfe, and through the unfitness thereof to containe haires, lastly by the acrimony of the vapours seng up from the adult humours and entralles, fretting and disturbing the roots of the haires. But if not only the hair, but also some portion of the skin and flesh about the roots of the hair, come away by pulling, it is an argument of perfect corruption: let this therefore be the first sign of a leprosie. A second & very certain signe is, a numerous & manifest circumcription of round and hard pustules or pustules under the eye-browes, & behind the ears and in several places of the face, resembling round and hard kernels, occasioned by the default of the assimulacive faculty. The cause of this default is the grossnesse of the flowing nourishment, by which means it is being impact, and stopping in the straitness of the way, it grows round at it were compall'd about in the place whereas it flicks, and by the means of the crudity, for that it is not assimulacv, and by delay, it is further hardened. The third
third figne is, the more contract and exact roundneffe of the eares, their grofseneffe, and as it were graniy spifitide or denfeneffe, the caufe of their roundneffe is the con-
sumption of the flaps & flihy part through want of nourishment, and excess of heat, but the occafion of their graniy spifitude is the grofseneffe of the earthy nourishment flowing thither. The fourth fign is a lion-like wrinkling of the forehead, which is the rea-
on that some terme this diifeafe morbus levonianus, the caufe hereof is the great dri-
neffe of the habit of the body, which also is the reaon that the barke of an old oak is
rough and wrinkled. The fifth is, the exact roundneffe of the eyes, and their fixt and
immoveable fliedinneffe, verily the eyes are naturally almost round, yet they appeare
obrute and somewhat broad on the forefide, but end in a Convex on the hind part, by
reaon of the concurfe and figure of the muscles and fat infenting the e— Therefore
thefe being confumed either through defect of laudible nourishment, or elfe by the
acrimoni of the flowing humour, they are reforted to their proper figure & round-
neffe. Now the muscles which moved the eyes being confumed, and the fat which fa-
cililated their motion wafted, it comes to paffe that they stand fluffe and不动able,
being deftitute of the parts yeilding motion, and the facility thereof. The fixth figne
is, the noftrils flat outwardly, but inwardly ftrait and contracted, that is, an earthy
& grofs humour forced from within outwards, which fwell the fides or edges of the
noftrils; whence it is, that the paffages of the nofe appear as if were obftructed by the
thickenneffe of this humour, but they are depreded and flared by reaon of the reit of
the face and all the neighbouring parts fworm more than their wont, add where to that
the partition is confumed by the acrimoni of the corroding and ulcerating humour
fenthither, which makes them necessarily to be depref, & fend forth bloody scabs.
The feventh is the lifting up thickneffe and fworming of the lips, the flithincneffe, flinke
and corrofion of the gums by acride vapours rifing to the mouth; but the lips of Le-
prous perfons are more fworme by the internal heat burning and incraflating the hu-
mours, as the outward heat of the Sun doth in the Moores. The eighth figne is the
fworming & blackneffe of the tongue, and as it were varicous veins lying under it, be-
cause the tongue, being by nature fpognious and rare, is eafily flored with excremen-
tious humours, fent from the inner parts unto the habit of the body: which fame is
the caufe why the granules placed about the tongue above and below, are fworme
hard & round, no otherwife than fcrophulous or meazicd fworme. Laftly, all their face
rieth in tuft bunches or pufhes, and is over-fpread with aduskie and obfcurcneffe;
the eies are fiery, fierce and fixt, by a raellancholick chachedick dispoficion of the
whole body, manifeft fignes whereof appcarc in the face by reaon of the forcmen-
tioned caufes • yetSome leprous perfons have their faces tindured with a yel-
lowifli colour, others with a whitifli colour, according to the condition of the humor, which ferves
for a Bafts to the leprous malignity. For hence Phy ficians affime that there are three
forts of Leprofie; One of a redifh black colour, confiding in a meiancholick humour;
another of a yel lowifti greene, in a cholerick humour; another in a whitifli yellow,
grounded upon aduft phlegmc. The ninth figne is a ftinking of the breach, as alio of
all the excrements proceeding from leprous bodies, by reaon of the malignity con-
ceived in the humours. The tenth is, a hoarncffe, a burning, harith and obfeure voicc
comming as it were out of the nofe, by reaon of the lungs, recurrent nerves, and
muscles of the throat tainted with the grofsenneffe of a vitulent and adult humour:
the forementioned conftriclion & obftrudion of the inner paflage of the nofe and
laffly, the afperity and inequality of the weazon by immoderate dryneffe, as it hap-
pens to fuch as have drunk plentifully of strong wines without any mixture. This
immoderate drineffe of the mufcles ferving for refpiration makes them to be trou-
bled with a difficulty of breathing. The eleventh figne is very obervable, which is a
Morphew or defedation of all the skin, with a dry roughneffe and graniy inequality,
such as appears in the skins of plucked geefe, with many tetters on every fide, a fil-
thry scab, and ucIers not cafting off only a branlike fcurfe, but alfo fcailes and crufts.
The caufe of this dry scab, is the heat of the burning bowels & humours, unequally
contracting and wrinkling the skin, no otherwise than as leather is wrinkled by the
heat of the Sun or fire. The caufe of the filthy scab & lepiginous ucIers, is the eating
and corroding condition of the melancholy humour, and the venenae corruption,
it also being the author of corruption, so that it may be no marvell if the digestive faculty of the liver being spoyle, the affimulative of a maligne and unfruit matter fent into the habit of the body cannot well nor fitly performe that which may be for the bodys good. The twelfth is, the fense of a certain pricking, as it were of goads or needles over all the skin, caused by an acrid vapour hindered from passing forth, and intercepted by the thickneffe of the skin. The thirteenth is a consumption and emaciation of the muscles which are betwene the thumbe and fore finger, not onely by reason that the nourifhing and affimulating faculties want fit matter wherewith they may repaire the loffe of these parts, for that is common to thefe with the rest of the body, but because thefe muscles naturally rise up unto a certaine mountanous tumor, therefore their depreffion is the more manifeft. And this is the caufe that the shoul¬ders of leprous persons stand out like wings; to wit, the emaciation of the inner part of the mufcles \textit{Trapezi}. The fourteenth figne is the diminution of fense, or a num¬neffe over all the body by reason that the nerves are obstructed by the thickneffe of the melancholick humour hindring the free paffage of the animal spirit, that it cannot come to the parts that should receive fene, thefe in the interim remaining free which are fent into the muscles for motions fake, and by this note I chiefly make trial of leprous persons, belonging somewhat long and thick needle somewhat deep into the great tendon endued with most exquifite fense, which runs to the heel, which, if they do not well feele, I conclude, that they are certainly leprous. Now, for that they thus lose their fene, their motion remaining entire, the caufe hereof is that the nerves which are difliminated to the skin are more affected, and thate which run into the mufcles are not so much; & therefore when as you prick them somewhat deep, they feel the prick, which they do not in the surface of the skin. The fifteenth is the corruption of the extreme parts polifhed by purefaction and a gangrene, by reaion of the corruption of the humours fent thither by the strength of the bowels, infecting with the like tainture the parts wherein they remain: adde hereto that the animal fenfitive faculty is there decayed, and as often as any faculty hath forfaken any part, the reft presently after a manner negleget it. The sixteenth is, they are troubled with terrible dreams, for they feene in their sleep to fee devils, serpentes, demons, graves, dead bodies, and the like, by reaion of the black vapours of the melancholick humour troubling the phantafie with black and difmal visions, by which reaion alfo such as are bitten of a mad dog fear the water. The seventeenth is, that at the beginning and in the increas of the disease they are suble, crastye and furious by reaion of the heat of the humours & bloud, but at length in the flate and declenfion they become crasty and fuphficious, the heat and burning of the bloud and entraies decayeing by little and little therefore then fearing all things whereof there is no caufe, & disturbing of their owne strength they endeavour by craft, maliciously to circumvent thofe with whom they deal, for that they perceive their powers to faile them. The eighteenth is, a defire of venery above their nature, both for that they are inwardly burned with a strange heat, as also by the mixture of flatulencies therewith (for whole generation the melancholick humour is moft fit) which are agitated, & violently carried through the veins and gentall parts by the preternatural heat, but at length when this heat is cooled, and that they are fallen into a hote and dry diftemper, they mightily abhor venery, which then would be very hurtfull to them, as it alfo is at the beginning of the diseafe, because they have small store of spirits and native heat, both which are dissipatet by venery. The nineteenth is, the great thickneffe of their groffe and li¬vide bloud, that if you wash it, you may finde a sandy matter therein, as some have found by experience, by reaion of the great adufion and affifion thereof. The twentieth is, the languidneffe & weakneffe of the pulse (by reaion of the oppreffion of the vital and pulfick faculty by a cloud of groffe vapours). Herewith alfo their urine sometimes is thick and troubled like the urine of carriage heales, if they have voided other times it finds as if it were obstructed, which only signifies that which is thin to flow forth by the ureinary passages, now the urine is oftentimes of a pale ah-colour, and at other times it finds like as the other excrements do in this diseafe. Verily there are many other fignes of the Leprofe, as the flowneffe of the belly by reaion of the heat of the liver, often belchings by reaion that the flomack trou¬bled
bled by the reflux of a melancholy humour, frequent inceasing by reason of the fulm
ness of the braine; to which this may be added most frequently, that the face and all
the skin is unctuous or greasy, so that water powereth thereon, will nor in any place ad
here thereto: I conceive it is by the internal heat dissolving the fat that lies under grease.
the skin, which therefore always lookes as if it were greased or anointed therewith in
leprous persons. Now of these forementioned signes, some are univocall, that is,
which truly and necessarily shew the Leprosie: other some are equivocall or common,
that is, which condue as well to the knowledge of other diseases as this. To
conclude, that afforded is a Leprosie which is accompanied with all, or certainly
the most part of these forementioned signes.

Chap. VIII.
Of Prognosticks in the Leprosie, and how to provide for such as
stand in fear thereof.

The Leprosie is a disease which passeth to the issue, as contagious almost as
the plague, scarce curable at the beginning, uncurable when as it is confirmed,
because it is a Cancer of the whole body; now if some one Cancer of some one part shall take deep root therein, it is judged uncurable. Furthermore the remedies which to this day have bin found out against this disease, are judged inferior and unequall in strength thereto. Besides, the signes of this disease do not outwardly shew themselves before that the bowels be seized upon, possessed and corrupted by the malignity of the humour, especially in such as have the white
Leprosie, fundry of which you may see about Bordeaux, & in little Britain, who notwithstanding inwardly burn with so great heat, that it will suddenly wrinkle and with
an apple held a short while in their hand, as if it had lain for many days in the
Sun. There is another thing that increaseth the difficulty of this disease, which is an
equal pravity of the three principall faculties whereby life is preserved. The decei
ful and terrible visions in the sleepe, and numneffe in feeling, argue the deprava
tion of the animal faculty; now the weakness of the vital faculty is shewed by
the weakness of the pulse, the obscurity of the hoarse and jarring voice, the difficul-
ty of breathing, and stinking breath; the decay of the natural is manifested by the
depravation of the work of the liver in sanguification, whence the first and principal
cause of this harme ariseth. Now because wee cannot promise cure to such as have a
confirmed Leprosie; and that we dare not do it to such as have been troubled therein
but for a short space, it remains that we briefly shew how to free such as are ready
to fall into so fearfull a disease. Such therefore must fret of all than all things in
diet and course of life whereby the blood and humours may be too vehemently heat
ted, whereof we have formerly made some mention. Let them make choice of meats
of good or indifferent juice, such as we shall describe in treating of the diet of such as
are sick of the plague; purging, bleeding, bathing, cupping, to evacuate the impurity
of the blood, and mitigate the heat of the liver, shall bee prescribed by some learned
physicians. Valeius de Tarenta much commends gelding in this case, neither do I think
it can be disliked. For men subject to this disease may be emmenated by the amuta-
tion of their testicles, and so degenerate into a womanish nature, and the heat of the
liver boyling the blood, being extinguish'd, they become cold & moist, which temper
is directly contrary to the hot & dry diffemper of Leprous persons; besides the
Leprous being thus deprived of the faculty of generation, that contagion of this dis-
ease is taken away which spreadeth and is diffused amongst mankind by the propa-
gation of their issue.

The End of the Twentieth Booke.
OF POYSONS,
AND OF THE BITING OF
A MAD DOGGE, AND THE BI-
TINGS AND STINGINGS OF
OTHER VENEMOUS
CREATURES.

The One And Twentieth Book.

CHAP. I.

The cause of writing this Treatise of Poysons.

I V E reasons have principally moved me to undertake to write
this Treatise of poysons, according to the opinion of the Anci-
ents. The first is, that I might instruct the Surgeon what reme-
dies must presently be used to such as are hurt by poysons, in the
interim whilst greater meanes may bee expected from a Physi-
cian. The second is, that hee may know by certaine signes and
notes such as are poysoned or hurt by poysonous meanes, and
so make report thereof to the Judges, or to such as it may con-
cerne. The third is, that those Gentlemen and others who live in the Countr
frie, and farr from Cities and store of greater meanes, may learne something by my labours
by which they may helpe their friends bitten by an Adder, madde Dogge, or other
poysonous creature: in fo dangerous, sudden and usuall a cafe. The fourth is, that ever
one may beware of poysons, and know their symptomes when present, that
being knowne, they may speedily seeke for a remedie. The fifth is, that by this my
labour all men may know what my good-will is, and how well minded I am towards
the common wealth in general, and each man in particular, to the glory of God.
I doe not here so much arme malicious and wicked perfons to hurt, as Surgeons to
provide to helpe and defend each mans life against poyson; which they did not un-
derstand, or at leaft seemed not so to doe, which taking this my labour in evill part,
have maliciously interpreted my meaning.

But now at length, that wee may come to the matter, I will begin at the generall
division of poysons, and then handle each species thereof severally: but first let us
give this rule: That, Poyson is that which either outwardly applied or struck in, or
inwardly taken into the body, hath power to kill it, no otherwise, than meat well
dreft is apt to nourish it. For Costivator writes, that the properties of poyson are con-
trary to nourishments in their whole substance, for as nourishment is turned into
bloud, and in each part of the body whereto it is applied to nourish, by perfect affi-
mulation is substituted in the place of that portion which flowes away each moment.

Thus
Concerning Poysons, &c.

Thus on the contrary poyfon turns our bodies into a nature like it itself and venemate, for as every agent imprints the force and qualities thereof in the subject patient, thus poyfon by the immoderation of faculties in their whole nature contrary to us, changeth our substance into its nature, no other wise than fire turneth chaffe in a moment into its owne nature, and so consumeth it. Therefore it is truly delivered by the Ancients, who have diligently pryed into the faculties of natural things, that it is Poyfon that may kill men by destroying and corrupting their temper, and the composure and conformation of the body. Now all poysons are faid to proceed either from the corrup tent, or from living creatures, plants and minerals, or by an artificial malignity in distilling, subliming and diversly mixing of poysonous and fuming things. Hence arise many differences of poysons, neither doe they all work after the same manner, for some corrupt our nature by the unconformable nature of the manifect and elementary qualities whereof they confift, others from a speciftick and occult property. Hence it is that some kill sooner than others; neither is it true, that all of them presently ailafe the heart, but others ar naturally as deadly strife with other parts of the body, as CATHARIDES with the bladder, the tea Hare with the lungs, the Torpoda with the hands, which it putrefeth, though the fingers rod bee betwixt them. Thus of medicines there are some which are apt presently to comfort and strengthen the heart, others the brain, as piaethos; others the Romack, as Cinnamon; Alto there are some poysons which work both ways, that is, by manifold and occult qualities, as Euphorbium, for that both by the excessive heat and the whole substance, or the discord of the whole substance with ours, corrupts our nature. An argument hereof is, that Treacle, which by its quality is manifectly hot, strengtheneth the force thereof, as also of all others of an occult property. Poisones which work by an occult and speciftick property, do not therefore doe it, because they are too immoderately hot, cold, dry, moist, but for that they are absolutely such, and have that efficacy from the stars and celestiall influence, which is apt to dissolve and destroy the strength of mans body, because being taken, but even in a small quantity, yet are they of so perecious a quality, that they kill almost in a moment. Now poysons do not only kill being taken into the body, but some being put or applied outwardly neither doe venomous creatures only harme by their stinging and biting, but also by their excrements, as spittle, blood, the touch and breath.

CHAP. II.

How poysons being small in quantity, may by their only touch cause so great alterations.

T seemeth strange to many, how it may come to passe, that poyfon, taken or admitted in a small quantity, may almost in a moment produce so perecious effects over all the body, and all the parts, faculties, and actions, so that being admitted in a little quantity, it twells up the body into a great bignesse. Neither ought it to seeme leffe strange, how Antidotes and Counter-poysons, which are opposit to poyfon, can so sudenly break and weaken the great and perecious effects thereof, being it is not likely that so small a particle of poyfon or Antidote can divide it selfe into so many, and so farreved particles of our body. There are some (faith Galen) who thinke that some things by touch only, by the power of their quality, may alter those things which are next to them, and that this appears plainly in the tea Torpoda, as that which hath so powerfull a quality, that it can fend it alongf the fifters rod to the hand, and so make it become torpide or numbe. But on the contrary, Philosophers teach, that accidents, such as qualities are, cannot without their subjeets remove and diffuse themselves into other subjeets. Therefore Galenos other answer is more agreeable to reason, that so many and great effects of poysons and remedies arife either from a certaine spirit or subtile humidity; or truly, for that this spirit and subtile humidity may be dispersed over the whole body, and all the parts thereof of which it arisefects,
Concerning Poysons, &c.

feats, but that little, which is entra’d the body, as caust by the stoke of a Spider, the like reason or the sting of a Scorpion, infects and corrupts all the next parts by contagion with the like quality, than the others that are next to them, till from an exceeding small portion of the blood, if the stoke shall light into the veins, it shall spread over the whole maffe of blood; or of phlegme, if the poyfon shall chance to come to the stomack, and so the force thereof shall bee propagated and diffus’d over all the humours and bowels. The doubt of Antidotes is leffe, for these being taken in greater quantity, when they shall come into the stomack, warmed by the heat of the place, they become hot, & send forth vapours, which suddenly diffus’d over the body by the subtlety of their substance, doe by their contrary forces dull and weaken the malignity of the poyson. Wherefore you may often see when as Antidotes are given in lesse quantity than is fit, that they are lesse prevalent, neither doe they answer to our expectation in overcoming the malignity of the poyson, so that it must necessarily follow that these must not onely in qualities, but also in quantity bee superior to poysons.

Chap. III.

Whether there be any such poysons as will kill at a set time?

O the propounded question, whether there may be poysons which within No poyson kill a certaine and definite time (put cauf a moneth or yeare) may kill men, in a set time. Theophratus thus answers; of poysons, some more speedily performe their parts, others more slowly, yet may you finde no such as will kill in fit limits of time, according to the will and desire of men. For that some kill sooner or later than others; they do not this of their owne or proper nature, as Physicians rightly judge, but because the subjece upon which they light, doth more or lesse refist or yeeld to their efficacie. Experience sheweth the truth hereof; for the same fsort of poyson in the same weight and measure given to sundry men of different tempers and complexion, will kill one in an houre, another in fince houres, or in a day, and on the contrary will not fo much as hurt fome third man. You may also obserue the fame in purging medicines. For the fame purge given to divers men in the fame proportion, will purge fome sooner, fome later, fome more sparingly, others more plentifully, and otherfome not at all; also with fome it will work gently, with otherfome with paine and gripings. Of which diererty there can no other caufe be aigned, than mens different natures in complexion & temper, which no man can to exactly know and comprehend, as to have certain knowledge thereof; as how much and how long the native heat can refist and labour againft the strength of the poyfon, or how pervious or open the passages of the body may bee whereby the poyfon may arrive at the heart and principall parts. For in fuch (for example fake) as have the passages of their arteries more large, the poyfon may more readily and speedily enter into the heart together with the air that is continually drawn into the body.

Chap. III.

Whether such creatures as feed upon poysonous things be also poysonous, and whether they may be eaten safely and without harme?

Ducks, Storkes, Heres, Peacocks, Turkises, and other birds, feed upon Toads, Vipers, Aspbes, Snakes, Scorpionis, Spiders, Caterpillars, & other veneous things. Wherefore it is worthy the questioning, whether fuch like creatures nourished with fuch food, can kill or poyfon fuch perions as shall afterward eat them? Matthiolius writes that all late Authors who have treated of poysons, to be absolutely of this opinion, That men may safely and without any danger feed upon fuch creatures, for that they convert the beasts in
Concerning Poisons, &c.

...to their nature after they have eaten them, and on the contrary, are not changed by them. This reason though very probable, yet doth it not make these beasts to be wholly harmless, especially if they be often eaten or fed upon. Dioscorides and Galen seeme to maintain this opinion, whereas they write, that the milk, which is nothing else than the retained blood, of such beasts as feed upon scammonie, hellebore, and purge, purgeth violently. Therefore Physicians, destrous to purge a sucking childe, give purges to the nurses, whence their milke becoming purging, becomes both meat and medicine to the childe. The flesh of Thruhies, which feed upon Juniper berries, favours of Juniper. Birds that are fed with worme-wood or Garlike, either taffer bitter, or have the strong fent of Garlike. Whitings taken with garlike, so smell thereof, that they will not forgoe that smell or taste by any salting, frying or boiling, for which sole reason, many who hate garlike, are forced to abstain from these fishes. The flesh of Rabbits that feed upon Pennyroyall and Juniper, favour of them; Phiccius with that Goats, Cows, and Affes, whose milke they would use for Consumptions or other diseases, should bee fed some space before, and every day with the fe or these herbs which they deeme fit for the curing of this or that disease. For if alse affirmes that he doubts not, but that in fucceffe of time the flesh of creatures will be changed by the meats whereon they feed, and at length favour thereof. Therefore I do not allow that the flesh of such things as feed upon venemous things should be eaten for food, unlefe it bee some long space after they have diffused such refpect, and that all the venom bee digested and overcome by the efficacy of their proper heat, so that nothing thereof may remaine in tafl, smell or substance, but bee all vanisht away. For many dye suddenly, the cause of whose deaths are unknowne, which peradventure was from nothing else, but the sympathy and antipathy of bodies, for that these things cause death and disease to some, that nourish othersome; according to our vulgar English proverbe; That which is one mans meat is another mans Poison.

Chap. V.
The general signs of such as are poysioned.

E E will first declare what the general signs of poysioned are, and then will we descend to particulars, whereby we may pronounce that one is poysioned with this or that poysion. We certainly know that a man is poysioned, when hee complaines of a great heavinesse of his whole body, so that he is weary of himself; when some horrid and loathfome sweats out from the orifice of the domack unto the mouth and tongue, wholly different from that tafl and taft that meat, howsoever corrupted, can fend up: when as the colour of the face changeth sudde

Signes of those poysions.

...
Concerning Poisons.

Poisons that kill by too great coldness, induce a dull or heavie sleep, or drowsinesse from which you cannot easily rouse or waken them; sometimes they do trouble the braine, that the patients performe many undecent gestures and anticke trickes with their mouths and eyes, armes and legges, like as such as are trancicke, they are troubled with cold sweats, their faces become blackish or yellowish, always ghastly, all their bodies are benummed, and they dye in a short time unless they be helped; poisons of this kinde are Hemlock, Poppie, Nighthade, Henbane, Mandrage. Dry poisons are usually accompanied by heate with moisture, for although jaffure bee hot and dry, yet hath it moisture, to hold the parts together, as all things which have a confidence have, yea are they called dry, by reason that drynesse is predominant in them, such things make the tongue and throat dry and rough, with unquenchable thirst; the belly is so bound, that so much as the urine cannot have free passage forth; all the members grow equallid by dry neede, the patients cannot sleep, they are troubled with thirst by reason of their strong heat, always the companion of putrefaction, & oftentimes the author thereof now when this commeth to pass, death is at hand. Very many deny that there can be any moist poisons found, that is, such as may kill by the efficacy of their humidity, because there are no such things to bee found, as may come to the fourth degree of moisture. Yet there is an example that averres the contrary, which was of one, who sleeping on the night, was bitten by a Serpent, as Glierius Anglicus affirmeth, for dying thereof, when as his servant, distress to awake his Master out of his sleepe, took him by the arme, all the flesh being putreficed, fell off, and presently the bones also fell under, being deprived of their fleh, which could not happen, unlese by excesse of the venemous humidity which lay hid in the teeth and spitcle of the serpent. Also wee have found it noted by Hippocrates, that in a raynny, humide, and southerly condittion of the yeare, it happened by the maligne violence of the venenare and putrefying humidity, that the flesh of the armes and legges becoming rotten, fell away by piecemeale, and the bones remained bare; yea also and the bones themselves in some, putrefied and fell away: neither certainly doth the Lues veneris kill by any other meanes, than by a fretting and putrefying force of humidity, by whose efficacy the solidity of the bones is disloved; then much more the fleh may bee tainted and confounded by putrefaction.

To these and such poisons which worke by a manifest and elementary faculty, when as they shall bee received into the body after what manner ever, you shall forthwith oppose their contraries, and if by chance it bee not manifest, what, and of what distink kind of poyon that is, you must know that such poisons as work by occult properties, it is not by reason as yet found out how they will affect the body, but onely by experience. Therefore to these you must oppose their like antidotes, which may by their whole substance strengthen the heart and vitall faculty, and withit and the strength of the poyon. But to this our distinction of poisons, workeing by a manifest and elementary quality, their opinion is contrary, who affirm that the venome of all poynous beasts are therefore cold, for that such as are biten or flung with them, are forthwith felt to bee colder then a stone. And that ferpents for fear of cold, when as winter is at hand, keep themselves in holes and dens under ground, or else as vipers use to doe, lie under stones, under which, you may often finde them flinte and numbe, and so unapt for motion, that you may eaily take them up in your hand. But the coldnesse that is perceived or felt in such as are bitten or flung, is not occasioned by the coldnesse of the poyon, but by the abscence of the natural heat, withdrawing it selfe in the very instant of the stoke, from the sur-
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Why such as are poiyoned or hagare cold.

face into the center of the body, both for the defence of the heart, as the principal part, as also for that there is nothing which so much dissipates, or so much oppugnes the vitall heat, as poiyon (of what kinde soever it be) doth.

C H A P. VI.

How, or by what means to shunne, or eschew Poisons.

It is a matter of much difficulty to avoys poisons, because such as at this time temper them, are so thoroughly prepared for deceit and mischief, that they will deceive even the most wary and quick sighted; for they so qualify their ingrate taste and smell, by the admixture of sweet and well smelling things, that they cannot easily be perceived even by the skillful. Therefore such as fear poiyoning, ought to take heed of meats cooked with much art, very sweete, fair, pure, or notably ended with any other taste. And when they are oppressd with hunger or thirst, they must not eat or drinke too greedily, but have a diligent regard to the taste of such things as they eat or drinke; besides, before meate let them take such things as may weaken the strength of the poisons, such as is the fat broth of good nourishing ffeath meats, in the morning let them arm themselves with treacle or mithridate, and conserve of roifes, or the leaves of rue, a wallnut and dry figs; besides, let him presentely drink a little draught of Muskeedwine or some other good wine; when one suspects he hath taken any poysis in meat or drinke, let him forbear sleeping. For besides that the force of poysis is oft times so rapid, that it consumes our life in a short space, as fire doth flueble, as also for that it is drawn more inwardly into the secret passages of the body by sleepe. Wherefore in such a case it is better to procure vomit by drinking Hydracium warme, or butter dissolved in warme oyle, or a decoction of line, or fenugreke feedes, or fat broth, for thus the received poison is also call forth wither, or else the acrimony thereof retumde, and the belly loofed.

You may see this by daily experience, for caustickes, vesicators, and the like accid things being applied to an anointed part, will not blister nor eructurate the part. Neither doth the vomit conduce onely in this, that it excludes the poison, but it shewes either by the taste, smell, or colour, the kinde of the taken poisons, so that then by using the proper Antidote, it may be the more easily and speedily rectifie, yet notwithstanding if you conceive that the poison have defended deeper into the Guts, you may with a glyster draw away the rest thereof which adheres to the coats of the Guts. But if the patient cannot vomit, then shall some purging medicine be given him forthwith, and such as are thought more particularly to resis poisons, as are Agarick, Aloes, the leffer Centaury, Rubarbe and other things, according to the direction of the learned Physitian. Then shall you administer glysters made with Caffia, fattiacoctions, flueps fuet, or butter or Cowes milk, with the mucilages of Line feed, pismium feeds, quince feeds, and other such things as are usually given in a Dy vernery, or bloody fluxe, that such things may hinder the adhesion of the poisons to the coats of the guts, and by their unctuousnesse retunde the acrimony of the poisons, and mitigate if any thing shall already be ulcerated, and absolutely defend the sound parts from the maligne effects of the poison. But let this be a perpetuall rule, That the poisons be speedily drawnne backe by the same way it enquired into the body; as, if it entred by smelling in at the nozifills, let it be drawnne backe by sneezing, if by the mouth into the flomack, let it be excluded by vomit, if by the fundament into the belly, then by glister, if by the privities into the womebe, then by metrenchites or injections made thereto, if by a bite, fling or wound, let revulsion bee made by such things as have a powerfull attractive facultie; for thus we make diversions, that by these we may not onely hinder the poisons from affailing the heart, but also that by this means we may draw it from within outwards. Wherefore strong ligatures caft about the armes, thighs and legges, are good in this case. Allo large cupping
concerning Poyfons, &c.

Concerning Poyfons, &c.

chap. vii.

How the corrupt or venomous Ayre may kill a Man.

The air is infected and corrupted by the admixture of malignant vapours either arising from the unburied bodies of such as are slain in great con

He is infected and corrupted by the admixture of maligne vapours either arising from the unburied bodies of such as are slain in great con

chfts, or exhaling out of the earth after earth-quaques, for the aire, long

pent up in the cavities and bowells of the earth, and deprived of the free-
dome and commerce of the open aire, is corrupted, and acquires a maligne quality, which it presently transferreth unto such as meet therewith. Also there is a certaine malignity of the aire which accompanies thunders, and lightnings, which favours of a fulphurous virulency, so that whatsoever wilde beasts shall devour the creatures killed therewith, they become madde, and dye immediately, for the fire of

lightning hath a farre more rapid, subtle, and greater force than other fires, so that it may rightly be termed a Fire of Fires.

An argument hereof is, that it melteth the head of a spear, not harming the wood, and filver and gold, not hurting the purse wherein it is conteined. Also the aire is infected by humagations, which presently admitted into the body and bowells by the mouth and nofe in respiration, by the skinne and arteries in perspiration, doth easi-

ily kill the spirits and humours being first infected, and then within a short space af-
ter, the solid substance of the principall parts, & chiefly of the heart being turned into their nature, unlefe the man be first provided for by fying, vomiting, sweating, purging by the belly, or some other excruction. For that poyfon which is carried into the body by smell is the most rapid & effectual, by so much as a vapor or exhalation is of more subtle & quicklier piercing effence than an humor. Yet notwithstanding, will thou fay, it is not credible, that any can be killed by any vapor raised by the force of fire, as of a Torch, or a Warming-pan, for that the venenate quality of the thing that is burnt, is dissipated and confumed by the force of the fire, purging and cleaning all things. This reason is fadly confined to the deftruction of the lives of careleffe people, for fulphurous brands kindled at a cleere fire, doe notwithstanding caft forth a fulphurous vapour. Whether doe not Lignum aloes and Juniper, when they are burnt in a flame, fiell leffe sweetly?

Pope Clement, the seventh of that name, the Uncle of our Kings Mother, was poyfoned by the flame of a poyfous Torch that was carried lighted before him, and dyed thereof. Martialus telleth, that there were two Mountebanks in the market-place of Sienna, the one of which, but smelling to a poyfoned gilly-flower given him by the other, fell downe dead presently.

A certaine man not long ago, when he had put to his nofe, and smelled a little unto a pomander, which was secretly poyfoned, was presently taken with a Perige, and all his face swelled, and unlefe that hee had gotten speedy helpe by sternuratories and other meanes, hee had died shortly after of the same kinde of death that Pope Clement did.

The safest preservative against such poysions, is not to smell to them: moreover, some affirme, that there are prepared some poyfons of such force, that being anoin
ted but on the saddle, they will kill the rider, & others, that if you but anoint the stirs

rops
Concerning Poisons, &c.

ROPs therewith, they will send so deadly poisons a quality into the rider, through his boots, that he shall die thereof within a short time after: which things, though they be scarce credible, because such poisons touch not the naked skin, yet have they an example in nature, whereby they may defend themselves. For the Torpedo sends a narcoticke, and certaine deadly force, into the arme, and so into the bodie of the Eel, the cords of the net being between them.

CHAP. VIII.

That every kind of Poison hath its proper and peculiar Signes and Effects.

Poisons are distinct in species, so each species differs in their signes and effects; neither is it possible to find anie one kind of poison, which may be accompanied or produce all the signes and effects of all poisons, otherwise Physitans should in vaine have written of the signes and effects of each of them, as also of their proper remedies & antidotes. For what kind of poison shall that be, which shall cause a burning heat in the stomack, belly, liver, bladder & kidneys, which shall cause a hickering, which shall cause the whole body to tremble and shake, which shall take away the voice and speech, which shall cause convulsions, shall weaken the pulsificke facultie, which shall intercept the freedom of breathing, which shall stupefie and cast into a dead sleepe, which shall together, and at once cause a Fertige in the head, dimness in the sight, a strangling, or stoppage of the breath, thirst, bleeding, fever, stoppage of the urine, perpetuall vomiting, redneffe, lividneffe, and paleness of the face, resolution of the powers, and manic other things, all which are caused by all sorts of poison. Lastly, no bodie will deny, but that hot poisons may kill more speedily than cold, for that they are more speedily actuated by the native heat.

CHAP. IX.

The Effects of Poisons from particular venomous things, and what Prognosticks may thence bee made.

It is the opinion of Cornelius Celsus, and almost of all the antients, That the bite of everie beast had some virulencie, but yet some more than other. They are most virulent that are inflicted by venomous beasts, as Apes, Vipers, Water snakes, and all kinds of Serpents, Basiliskes, Dragons, Toads, Mad dogges, Scorpions, Spiders, Bees, WafpeS, and the like. They are least maligne, which are of creatures wanting venome, as of Hores, Apes, Cats, Dogges not mad, and manie other things, which though of their owne nature they are without poison, yet in their bites there is something more dolorificke and ill natured, than in common wounds inflicted by other occasions: I believe that in their farger or fanner, there is something, I know not how to term it, contrary to our nature, which imprints a maligne qualitie in the ulcer, which alio you may observe in the tearings or scratchings of such creatures as have thirpe claws, as Lions and Cats. Moreover many affirm, that they have found by experience, that the bites of men are not altogether without virulencie, especially of such as are red haired and freckled, cheiflie when they are angred, but it is probable that the bites of other persons want this malignitie, seeing that their spittle will cure small ulcerations. Wherefore if there shall happen difficultie of cure in a wound, caused by a mans biting, which is neither red hairred nor freckled, neither angrie; this happens not by means of the spittle, nor by anie maligne qualitie, but by reason of the contusion, caused by the blunteresse of the teeth, not cutting, but bruizing the part, for being not tharp, they cannot so easilie enter the fether, unleffe by bruising and tearing, after the manner of heauie and blunt strokes.
Concerning Poisons, &c.

Of wounds and weapons, wounds being occasioned by such are more hard to be cured than such as are made by cutting and sharp weapons. But of the fore-faid bitings of venomous creatures, there are few which doe not kill in a short space, and almost in a moment, but principally if the poison be sent into the body by a live creature, for in such poison there is much heat also there is therein a greater tenuity, which serves as vehicles thereto into what place or part overer the body they tend, the which the poisons taken from dead creatures are defective of. Wherefore some of these kill a man in the space of an hour, as the poison of Asps, Basiliskes and Toads; others not only in two or three days space, as of water Snakes; a Spider, and Scorpion require more time to kill, yet all of them admitted but in the leaft quantity, doe in a short space cause great and deadly mutations in the body, as if they had breathed in a pestiferous aire, and with the like violence, pain and change into their owne nature the which the members and bowels, by which these same members do in the time of perfect health change laudible meats into their nature and substance. The place whereas these poisonous creatures live, & the time, conduce to the perniciousnes of the poison, for such as live in dry, barrenous and sun-burnt places kill more speedily than such as be in moist and marshy grounds; also they are more hurtfull in winter than in summer, and the poison is more deadly which proceeds from hungry, angry and falling creatures, than that which comes from such as are full and quiet; as also that which proceeds from young things, chiefly when as they are stimulated to venery, is more powerful than that which comes from old & decrepit; from females wrore than from males; from such as have fed upon other venomous things, rather than from such as have abstained from them, as from Snakes which have devoured toads, vipers which have fed upon Scorpions, Spiders & Caterpillers. Yet the reacon of the efficacie of poisons depends from their proper, that is, their sublime or groffe constitution, & the greater or lesse aptness of the affected body to suffer. For hot men that have larger & more open veins & arteries, yeld the poison freer paffage to the heart. Therefore those which have more cold & straight vessels, are longer ere they die of the like poison; such as are full, are not so soon harmed as those that are falling: for meats, besides that by filling the vessels, they give not the poison so free paffage; they also strengthen the heart by the multiplication of spirits, so that it more powerfully resists pernicious venoms. If the poison works by an occult and specificke property, it caufeth the cure and prognosis to be difficult, and then muft we have recourse to Antidotes, as the which in their whole fubftance refift poisons, but principally to treacle, because there enter into the composition thereof medicines which are hot, cold, moist and dry: whence it is, that it retunds and withstands all poisons, chiefly such as consist of a simple nature, such as these which come from venomous creatures, plants and minerals; and which are not prepared by the detestable art of empoisoners.

What cures must be used to the bitings and stings of venomous beasts.

Use must speedily bee used without any delay to the bites and stings of venomous beasts, which may by all means disperse the poison, and keep it from entering into the body; for when the principal parts are poiffed it boos nothing to use medicines afterwards. Therefore the Ancients have propounded a double indication to lead us to the finding out of medicines in such a case, to wit, the evacuation of the virulent and venenate humour, and the change or alteration of the same and the affected body. But seeing evacuation is of two sorts, to wit, univerfall, which is by the inner parts, and particular, which is by the outward parts. We muft begin at the particular, by such medicines as are fit to draw out, and retund the venome; for we muft not alwais begin a cure with general things as some thinke, especially in external diseases, as wounds, fractures, dislocations, venomous bites and punctures. Wherefore
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B. 1

I. Concerning Poisons, either for amusement or for medicine, as by-product or Precipitate mixed with the powder of Alum, or a cautick beaten to powder. But you must always observe this, that with your ointments you must always mixe some Treacle or Mithridatc, or the juice of hyssop, or the like, which have power to attract and disperse the poyon, and cleanse the ulcer; yet it is too vehement heat shall cause such paine as is likely to bring a gangrene by the dissipation of the spirits, then neglecting the cure of the proper disease for a time, you must labour to correct the symptomte. But in this case you must oblieve this rule, that you let no blood, give no purging medicine, nor glass, nor vomit, nor use no bath, nor other thing that may procure sweat, untill three daies be past after the bite or sting. In the meantime, let the patient flunt all manner of labour, but chiefly venery, left by causing an agitation of the humours, the poyon get sooner to the heart. Therefore then, it is time to use universal evacuations, when as you shall suspect that the poyon is diffused over the veins and whole inner part of the bodie besides. Before you shall give nothing, unlefe medicines of Treacle or Mithridate and the like things, which have a faculty to refit poyon, and strengthen the whole body by their benign and vital vapour, although their substance goe no further than the stomack. Thus pills when they are swallowed, though they goe no further than the stomack, yet doe they draw matter out of the joints and head; and strong glyters, though they passe no further than the guts, yet by their quality diffusd further with the vapour, they draw from the most distant parts; yet you must give an Antidote, not only more powerfull than the poyon in quality, but also greater in quantitie, that so it may the more easilly overcome and expel the poyon. Wherefore you must give it twice in a day, and continue it so long untill you shall know that the strength of the poyon is weakened and overcome by the remission and decay of the maligne symptomtes. Yet in the meantime, you must not neglect the distemper caufed in the part by the poyon, but mutc rather correct it by the application of remedies contrary to the distemper, as by cold things, if great heat affect the affected part and whole bodie; by hot things on the contrary, if it seeme as cold as a stone, which oft-times happens. And let thus much suffice for the generall cure of poysons: now will we come to their particular cure.

chap. XI.

Why dogges sooner become mad than other creatures, and what are the signes thereof.

Dogges become mad sooner than other creatures, because naturally they enjoy that temper and condition of humours which hath an easy inclination to that kinds of disease, and as it were a certain disposition, because they feed upon carrion and corrupt, putrid and filting things, and lap water of the like condition; besides the trouble and vexation of losing their masters, makes them to runne every way, painfully fearching and smelling to every thing, and neglecting their meate. A heating of the bloud ensues upon this paines, and by this heat it is turned into a melancholy, whence they become madde. But yet dogges doe not alway become mad by means of heat, but also by occaction of cold, that is, by contrary causes, for they fall into this distempe not onely in the dog- daies, but also in the depth of winter. For dogges abound with melancholic humours, to wit, cold and drie. But such humours as in the summer through exceffe of heat, so in the depth of winter by constringation and the suppresion of fuliginous excrements, they enflfe turn into melancholie. Hence follows a very burning and continual feaver, which causeth or bringeth with it a madnesse. Adde hereto, that in the depth of winter the heat which is contained within is reddoubled, and in like manner as the searcing heat in summer, it breeds and turns the humours into melancholie. Alfo dogges become madde by contagion, as such as are bitten by another madde dogge. A mad dog hath sparkling and fierie eies, with a fixt looke, cruel and a squint, hee carries his head heavily, hanging downe towards the ground, and somewhat on one side,
Concerning Poysons, &c.

Lib. 21.

he gapes, and thrusts forth his tongue, which is livid and blackish, and being short breathed, casts forth much filth at his nose, and much foaming matter at his mouth, in his gate, as if he suspected and feared all things, he keepeth no one or certain path, but runs one while to this side, another while to that, and stumbling like one that is drunke, he oftentimes falleth downe on the ground; he violently affails whatsoever he meets withall, whether it bee man, tree, wall, dog, or any thing else; other dogs thin him, and presently sent him a farre off. But if another unawares chance to fall foule on him, he yields himselfe to his mercy, fawnes upon him, and privity labours to get from him, though hee be the stronger & greater. Hee is unmindfull of eating and drinking, he barke not, yet he bites all he meets without any difference, not sparing his master, as who at this time hee knowes not from a stranger or enemie. For it is the property of melancholie to disturb the understanding, so that such persons as are melancholie, doe not onely rage against, and use violence to their friends and parents, but also upon themselves. But when as hee sees water, he trembles and shakes, and his haires stands up on end.

CHAP. XII.

By what signes we may know a man is bitten of a mad dog.

The bite of a mad dog is not fo easie at the first to know a man that is bitten with a mad dogge, and principally for this reason, because the wound made by his teeth causeth no more pain than other wounds usual-

ly do; contrary to the wounds made by the sting or bite of other poysonous creatures, as those which presently after they are in-

fected, cause sharpe paine, great heat, swelling, and abundance of other maligne accidents, according to the nature of the poyson; but the malignity of the bite of a mad dogge appears not before that the venome shall invade the noble parts. Yet when you are fulpicious of such a wound, you may acquire a certaine knowledge and experience thereof by putting a piece of bread into the quittance that comes from the wound. For if a hungry dog neglect, yea more fly from it, and dare not so much as smell thereto, it is thought to bee a certaine signe that the wound was infected by a madde dogge. Others add, 'That if any give this piece of bread to hens, that they will die the same day they have eaten it; yet this latter, I making experiment thereof, failed, for devouring this virulent bread, they became not at the worefe. Wherefore I think the former signe to bee the more certaine, for dogs have a wonderful and sure smelling faculty, whereby they easie fent and perceive the malignity of the like creature. But when as the raging virulent can hath invaded the noble parts, then the patients, becomming silent and farrow-

full, thinke of many things, and at the beginning make a noise with their teeth; they make no anfwer to the purpose, they are more teffie than ordinarie, and in their sleepe they are troubled with dreams, and strange phantasies, and fearfull visions, and laftly, they become afraid of the water. But after that the poifon hath fixed it selfe into the substance of the noble parts, then all their faculties are disturbed, all the light of their memorie, fenfes, reason and judgement is extinghuished. Wherefore becomming stark mad, they know not such as stand by them, nor their friends, nor themselves, falling upon such as they meet withall, & themselves with their teeth, & nailes & feet. Often twitchings like convulsions do suddenly rise in their limbs; I judge them occasioned by extraordinary drinke, which hath as it were wholly drunk up all the humidite of the nervous parts; there is a great drinke of the mouth with intolerable thirst, yet without any desire of drink, because the mind being troubled, they become unmindful & negligent of such things as concerne them, and are needful for them; the eyes look fierce & red, & all the face is of the same colour, they still think of dogs, and seem to see them, yea and desire to bark and bite just after the manner of dogs; I conjecture that the virulent humour hath changed all the humours & the whole body into the like nature, so that they think themselves also dogs; whence their voice becomes hoarse by much endevouring to bark, having forgot all decen-

Cie,
Concerning Poisons, &c.

For their voice growes hourse by reason of the great dryness of the _spera arteris_; they than the light, as that which is enemy to melancholy, whereby the whole substance of the braine is replenished; on the contrary, they do make darkenesse, as that which is like and friendly to them. But they are afraid of the water (though good to mitigate their great distemper of heat and drincke) and they fly from looking-glasse, for that they throw themselves on the ground, as if they would hide them. 

leivcs therein, lest they should be bitten againe; for they affirm that he which is bitten by a mad dog, alwaies hath a dog in his minde, and so remains fixed in that mad cogitation. Wherefore thinking that he sees him in the water, he trembles for fear, and therefore flies the water. Others write that the body by madnesse becometh wondrous dry, wherefore they hate the water, as that which is contrary thereunto, being absolutely the moistest element, and so they say that this is the reason of their tearing the water. Ruffus writes that madnesse is a kinde of melancholie, and that feare is the proper symptom thereof, according to _Hippocrates_; wherefore this or that kind of melancholie begetts a feare of these or those things, but chiefly of bright things, such as looking-glasse and water, by reason that melancholie persons fecke darkenesse and solitariness, by reason of the black corruption of the humoure wherewith they abound. They fall into cold sweats, a comick, liking and greenish matter flows from the ulcer, by reason of the heat of the antecedent caufe and ulcerated part. The urine most commonly appears watry, by reason that the frainess, as it were, of the kidnies, are strained by the heat and drincke of the venom. Yet sometimes it appears more thick and black, as when nature powerfully using the expulsive facultie, attempts to drive forth by urine the melancholie humoure, the feare of the venom. Also sometimes it is wholly suppreft, being either increafed by hot drynesse, or else the mind being carried other waies, and forgetful of its owne duty, is unfat till length the patients, vexed by the cruelty of fo many symptomes, and overcome by the biteme of pain, die frantic, by reason that medicines have not been speedily and suitably applyed. For few of those who have used remedies in time, have partake the perill of this diseafe.

CHAP. XIII.

Prognosticks.

The venom of a mad dog taken in hand in time, in the skin, or at any time, will never recover. Yet _Adrastus_ thinks their case is not desperate, if as yet they can know their face in a glasse; for hence you may gather, that all the animall faculties are not yet overthrown, but that they stand in need of strong purgations, as we shall shew hereafter. _Aristoteles_ that there was a certaine Phylosopher, who taken with this diseafe and a feare of water, when as hee declared with a great courage unto the bath, and in the water beholding the shape of the dog that bit him, hee made a stand, but abashed thereof, hee forthwith cried out.
What cure must be used to such as are bitten by a mad dog.

His case also requires speedy remedies, for such things are in vaine which come long after the hurt. The Lawyer Baldus experienced this to his great harme; for being by chance lightly bit in the lip by a little dog whereas he was delighted, not knowing that he was mad, & neglecting the wound, by reason of the smallnesse thereof, after some foure months space, he died mad, having then in vaine afayed all manner of medicines. Wherefore observing these things both for evacuation, as also for alteration, which we have formerly mentioned in the generall cure of wounds inflicted by the bite or sting of venemous creatures, and by all the meanes there specified, we must draw forth the venome, if it be not great, it shall be enlarged by fcarification, or an occult cauterie, neither shall it be healed or clofed up at the fooone, till forty daies be paffed. Sorrel beaten and applied to the wound, and the decoction thereof taken inwardly, is very effectuall in this case, as Actius affirms. To the fame purpose you may with good successe make a lotion and fricction with muftard dissolved in urine or vinegar, leaving upon the wound a double cloth moistened in the fame decoction: lastly, all acrid, biting and very attractive medicines are convenient in this case. Wherefore some apply Rocket boyled and beaten with butter and falt; others take the flower of Orbus, and temper it with honie, falt and vinegar, and apply it hot. Horse-dung beaten in thurpe vinegar, or brimstone beaten to powder and tempered with ones pittle, is good. Alfo black picht melted with fome falt, and a little Euphorbium mixed therewith and fo applied, is good. Some write, that the haires of the dogs whole bite caufed the madnefse, apied by themselves, by their sympathetic or fimilitudine of subftance draw the venome from within outwards; for fo a Scorpio on beaten and applied to the place whereas it fang, by drawing out the poifon that it fent in, restores the patient to health, both there by often experience are affirmed to have certaine event. Others chew unground wheate, and lay it upon the wound, others roaft beads under hot embers, then huflke them and cleft them, and fo apply them. Alfo the wound may be wholfuly washed and fomented with a decoction of Dockes, and then the herb beaten may be applied thereto, alfo the patient may drinke the decoction, and by this one remedy Actius affirms that he hath recovered divers; for thus it moves urine plentifully, which is thought much to condue to the cure of this difease. There be fome who apply the leaves of betony and nettles beaten with common falt; others make a medicine to the fame purpose, and after the fame manner of an Onion, the leaves of Rue and falt. Yet the reft are exceeded by Treacle dissolved in aqua vita or ftrong wine, and rubbed hard upon the part, fo that the blood may follow, laying upon the wound when you have wiped it, clothes dipped in the fame medicine, then prefently apply garlike or onions beaten with com-
Concerning Poisons,

mon salt and turpentine: by this only remedy I freed one of the daughters of Ma-

damoyselle de Gron from the symptoms of madness, and healed the wound, when as

a mad dog had bit her grievously in the calf of the right leg. Also it is good pre-

vently to cats garlic with bread, and then to drink after it a draught of good wine, for

garlick by its spirituous heat will defend the noble parts from poison. There be

some who will to eat the roasted liver of the dog that hurt them, or else the liver of

a goat, of which remedies as yet I have had no experience. Others prescribe a dram

of the seeds of Aegus calli to be drunk with wine and butter. Others the powder

of river-crabs, burnt and drunk in wine. Or, N. rad. geniana. S. ascorum flaviatilis:

um in fumo combust. & in pollinum redact. S. terra sigilla. S. mife. give S. of this same

powder in the decoction of river crabs, & let them drink thereof oft at sundry times.

Many have cast themselves into the sea, neither have they thence had any relief

against madness, as Ferrand Peret the Cardinal testifieth in his booke of poisons; Leaping

wherefore you must not reliance upon that remedy, but rather you must have recourse

to such things as are set downe in the books of Physicians, and approved by certaine

and manifold experience. But seeing that no poison can kill, unless it be taken or ad-

mitted into the body, we must not fear any harme by sprinkling our bodies with the

fumes of a mad dogge, viper, toad, or any other such like venemous creature, if so bee

that it be presently wiped or washed clean away.

Chap. XV.

What cure must be used to such as fear the water, but yet are able to

know themselves in a glasse.

Such as have not their animal faculty as yet overcome by the malignity of

cruel malignity, must have strong purgations given them. Where-

fore, if in any cafe Antimonial bee usefull, then is it in this, as that

which causeth sweats, lootheth the belly, and procures vomiting. For it

is a part of extreme and dangerous madness to hope to overcome the

cruel malignity of this poison already admitted into the bowels, by gentle purging

medicines. Alas! such and so great danger is never overcome without danger.

Baths also conduc, which may diurpfe and draw forth the poison by causing

sweats. Also many and frequent treacle potions are good, to retund the venome,

and strengthen the bowels; also it will be fitting to give them water and all other liquid

things, which they so much abhorre, in a cup with a cover. Alwaies let such as are

poisoned, or bitten or stung, by a mad dog or other venomous beast, keep themselves

in some warme and light place, that the poison which by coldness is forced in, may

be the readiier drawn out by the means of heat, and the spirits be recreated by the

brightness of the aire, and therefore move from the center to the circumference of

the body, and let the room be perfumed with sweet things. To eat very hot and salt

things presently at the beginning, as onions, leeks, all spiced meats, and strong wine

not allayd, seem not to be of this reason; because such things by their spirituous

heat hinder the diffusion of the poison over the body, and strengthein the filled en-

trailes. There be some alfo that would have them to feed upon groffe and visceous

meats, which by obstrucing the vesicels, may hinder the passage of the poison to the

heart and other parts; and by the same reason it will be better to fill themseflves with

meate to satiety, than other wise, because the malignity of humours is encreased by

hunger than which, nothing can be more harmful to venomous wounds. Yet within

a short while after, as within five or sixe dayes, they must returne to a mediocritie,

and use all things temperate, boiled meats rather than roastted, and that in a decoction

of opening things, so to move urine. Lastly, they must keepe such a diet as melancho-

like persons ought to do; neither shall they let bloud, lest to the poiyon should bee

further drawne into the veins; but it is good that the patients body be soluble from

the very first. Let their drink be wine indifferently allayed with water, aquae mel.

plexis, or the syrupe of the juice of Citron with boiled water; or else this following

Julep
Concerning Poysons, &c.

Why the poys of
beings to such
are given by
head-dog, and
all such as are
poysoned.

Julep. R. ficcstimum, & malorum cistri, au. $ 3. fuc. gran. acidi $ 31. aqua aceticf, min. oris. an. 3. ap. fum. cott. quantum suflcet, fat Julep, ut arst eff. Sleep is to be
avoided until the force of the poyson is abated, for by sleep the humourous flows back
into the bowells. All things that reftit poyson muft be given any way whatsoever,
as lemons, oranges, angelica roots, gentian, borsmirell, burnet, vervine, cardius he-
medicis, borage, bugloss, and the like. Let all things that are afterwards ter before
the patient be meats of good juice, such as are veale, kid, mutton, partridge, pullets,
capons, and the like.

CHAP. XVI.
of the biting of a Viper or Adder, and the symtpomes and cure thereof.

He remedies that were formerly mentioned against the bitings of
madde dogges, the same may bee used against all venemous bites
and things, yet nevertheless each poyson hath his peculiar anti-
dote. Vipers or Adders (as we vulgarly term them) have in their
gummes, or the spaces betwene their teeth, little bladders filled
with a virulent fume, which is prepared out into the part that they
bite with their teeth. There forthwith ariseth a pricking paine, the part at the first
is much swollen, and then the whole body, unless it be hindered: groffe and bloo-
dy filth sweats out of the wound, little blisters rife round about it, as if it were burned,
the wound gnatrs, and as it were feeds upon the fleb, great inflammation poffzeth
the liver and the gummes, and the whole body becomes very dry, becomming of a
yellow or pale colour, with thirst unquenchabe, the belli is gripeby fits, a
cholerick vomiting molesteth them, the stomack is troubled with a hicketting, the
patients are taken with often sownings, with cold sweate, the forerunner of death,
unless you provide by ft medicines for the noble parts, before the poyson shall in-
vade them. Mathias tells that he saw a country-man, who, as he was mowing a
meadow, by chance cut an Adder in two with his fische, which when he thought it
was dead, he took the one halfe whereon the head remained, without any feare in
his hand, but the enraged creature, turning about her head, cruelly bithim by one of
his finge s, which fier as men usually doe (especially when as they thinke of no
such thing) hee put into his mouth, and sucked out the blood and poyson, and pre-
fently fell downe dead.

When as Charles the ninth was at Montpelier, I went into the fhop of one Farges
an Apothecary, who then made a folemn deputation of Trecalle, where not fa-
tisfying my felle with the looking upon the vipers which were there in a glaffe, ready
for the composition, I thought to take one of them in my hands, but whilef that I
too curiously and fecretly handled her teeth which were in her upper jaw, covered
with skinne, as it were a cafe to keepe the poyson in, the beast caught hold of the very
end of my fore-finger, and bit me in the space which is betwene the naille and the
fleb; whence presently there arrofe great pain, both by reaon of the part endued
with moft exquifite fene, as also by the malignity of the poyson: forthwith I ex-
ceedingtraftly bound my finger above the wound, that so I might preffe forthe
blood and poyson, left they should diuifee themselves further over the body. I dif-
folved old trecalle in aqua viva, wherein I lipped and moistened cotton, and fo put it
to the wound, and within a fewe dayes I thoroughly recovered by this oneely med-
cine. You may in flead of Trecalle, Mithridate and fundry other things, which
by reafon of their heat are powerfull drawers, as a flqiull rosted in hot embers, gar-
lische and leeks beaten and applyed, barly flour tempered with vinegar, hony, and
goats dung, and fo applyed like a pulis. Some thinke it fufficient forthwith to waft
and foment the wound with vinegar, salt, and a little hony. Galen writes that the
poyson indiated by the bite of a viper, may bee drawne forth by applying to the
wound the head of a viper, but otherfome apply the whole viper beaten to malh.

Remedies for the bite of a viper.

LIB. de 19. 11.
Chap. XVII.

Of the Serpent called Hæmorrhous.

He Serpent Hæmorrhous is so called, because by his biting hee causeth blood to droppeth out of all the passages of the wounded bodie: hee is of a small bodie, of the bignesse of a viper, with eies burning with a certainie fixtie brightness, and a most beautifull skinne. The backe of him (as A. vius writes) is spotted with manie blacke and white spots, his necke little and his tale verie small: the part which he bites, fortheith groweth blackish, by reason of the extintion of the native heat, which is extinguished by such poison which is contrary thereto in its whole substance. Then followeth a paine of the stomacke and heart, these parts being touched with the pestiferous qualitie of the poison. These paines are seconded by vomiting, the orifice of the ventricile being relaxed by a Distemper, the retentive facultie of all the parts of the bellie being weakened, and the veins which are spread through the guts, not being able to retaine the blood contained in them. For the blood is feen to flow out, as in streams, from the nofe, mouth, ears, fundament, privities, corners of the eies, roots of the naile, and gums, which putrefie, the teeth falling out of them. Moreover there happens a difficultie of breathing, and stoppage of the urine, with a deadly convulsion.

The cure is forthwith to fearifie, and burne the bitten part, or else to cut it quite off, if that it may be done without danger of life, and then to use powerfullie drawing Antidotes.

The figure of the serpents Hæmorrhous.

Chap. XVIII.

Of the Serpent called Seps.

He Serpent Seps is so called, because it causeth the part which it bites, forthwith to putrefie, by reason of the cruell malignitie of its poysion. It is not much unlike the Hæmorrhous, but that it curles or twines up the tale in divers circles. Panthius writes that this serpents is of an ash-colour, a broad head, small necke, bigge bellie, writhe tilde, and as he goes, hee runs aside like a crabbe. But his skin is variegated and spotted with severall colours, like to Tapistrie: By the cruelty of his cauticke and putrefying venome, hee burns the part which he hath bit, with most bitter paine: he causeth the shedding of the haires, and as Minus addeth, the wound at the first calleth forth manifest blood, but within a little while after, flinking filth. The putrefied affected parts waxe white, and the bodie all over becomes of the colour of that scurfe, which is termed Alphos, so that by the wickednesse of this putrefactive poion, not onely the spirits are resolved, but also the whole bodie consumed, as by fire, a pestilent carbuncle, and other purrid tumours, arising from a hot and humide or suffocating continuance of the aire. Now for the remedies, they must be such as are formerly prescribed against the bitings of a viper.

The
Concerning Poysons, &c.

The Figure of the Serpent Seph.

The Efficacy of the Poyson of the Basiliske.

Lib. de C другими.

Where the Basiliske is thought to kill by his noisy flight.

Philos. lib. III. cap. 1.

The Camelopus.

Nothing in the Basi.

Stirps. nat. en.

Cure.

CHAP. XIX.

Of the Basiliske or Cockatrice.

The Basiliske far exceeds all kinds of Serpents in the curstness of its poyson. Therefore it is affirmed by Nicander, that into what place soever he comes, other venemous creatures do forthwith fly thence, for that none of them can so much as endure his hissing, for he is thought to kill all things even with this, & not with his biting and touch only, besides, if any of them happen to get anie meat or drinke, and perceive that the Basiliske is not at a distance from them, he flies back and neglects the getting of nourishment necessary for life. Galen writes, that the Basilisk is a yellowish serpent, with a sharp head, and three ridings distinguished with white spots, and rising up in forme of a crowne, by reason whereof he is called the King of Serpents. Certainly the violence of his poyson in killing men is so great, that he is therefore thought to kill men, and other creatures by his sight onely. Salinus affirmes, that the body of a dead Basiliske hath wondrous faculties. Wherefore the inhabitants of Pergamum, in ancient times, gave a mightie price for one, to hang upon the joistes of the temple of Apollo, to drive away the Spiders and Birds, lest they should there weave their webs, or the other build their nests in that facred place. Verily no ravenous creature will touch their carcasse, but if constrained by hunger they doe touch it, then they forthwith fall downe dead in the same place: and this happens not onely by eating their body, but also by devouring the bodies of such beasts as are killed by their bitings. They kill the trees and thums by which they passe, not onely by their touch, but even with their breath. Among the western Ethioptians is the fountain Nigris, near which there is a serpen called Camelopus, small in bodie, and flow, having a great head, which it scarce can carry, but that it lies always upon the ground, otherwise it would kill abundance of people, for it forthwith kills all that see the eyes thereof, the Basiliske hath the same force; he is bred in the province of Cyrene, of the length of some twelve fingers, with a white spot in his head, resembiling a crowne; he chace away all serpents with his hisse: Weasels are the destruction of such monsters: thus it pleased nature that nothing should be without its equall; they affayle them in their denss, being easie knowne by the barrenness or consumption of the foile. They kill them all by their fent, and they die, and the sight of nature is ended thus: Nicander tells, that the number of the male is a thousand, but the female is less. Basiliskus writes, that a golden yellowneffe affects the bitten part of such as are hurt by a Basiliske, but a blackneffe and tumour poiseth the rest of the body, all the flesh of the muscles within a while after falling away piece by piece. An anicklo against this must be made of a dramme of Cuftemum disolved.
The Salamander kills not only such as it bites by making a venomous impression, but it also infects the fruits and herbs over which it creeps, with a sputter or grosse moisture which sweats out of all the bodie, to the great danger of the health and life of such as eat these things at unawares: wherefore it need not seem strange, which is received by some late writers, that some families have all died by drinking water out of pits, whereinto a Salamander by accident was fallen. For if it shall creep upon a tree, it infects all the fruit with the qualities of cold and moist poyson, wherein it yeeds not to Aconite.

Aetius writes that such as are infected with the poyson of a Salamander, certaine parts of their bodie grow livide, so that they fall away often, being putrefyed. At the first there appeare white spots over the body, then red, afterwards blacke with putrefaction, and the falling away of the haires. The cure is, to procure vomit, to loofe the belly with a glyster, and to give them Treacle and Mithridate in potions. Aetius prescribes the same things against this kinde of poyson as against opium, by reason of the cold nature of them both; the proper antidote is turpentine, syrinx, nettle seeds, and cypress leaves. Dioscorides writes that the Salamander is a kind of Lizard dull, varieagated, and which is falsely reputed not to be burnt by fire. But Pliny faith the is so cold, that the exinguishes the fire by her touch onely, being laid upon hot coales. On the contrary, Mathiolas faith that cast into a great flame, they are quickly consumed. It is caufe out of Aetius to reconcile these disagreeing opinions: This creature, faith hee, paffeth through a burning flame, and is not hurt, the flame dividing it selfe and giving her way, but if shee continue any time in the fire, the cold humour being confuned in her, she is burnt. Now the Salamander is black, varieagated, with yellow spots, starre-fashion.
Chap. XXI.

Of the Torpedo.

He Torpedo hath his name from the effect, by reason that by his touch and power the members become torpid & numb; in muddy shallow it lives upon fish, which the catcheth by craft. For lying in the mud, she to stupefies those that are nigh her, that the easily preyes upon them; she hath the same power over men, for she sends a nummelle not one-ly into the arm of the fisherman, but also over all his body, although his fishers pole be between them.

Chap. XXII.

Of the Bitings of Asps.

The wound which is made by an Aspe is very small, as if a needle were thrust into the part, and without any swelling. These symptoms follow upon her bite, sudden darknesse clouds their eyes, much agitation in all their bodies, but gentle notwithstanding; a moderate paine of the stomack troubles them, their fore-heads are continually troubled with convulsive twitchings, their cheeks tremble, and their eye lids fall gently to rest and sleep; the blood which flowes from the wound is little, but blacke; death no longer deferred than the third part of a day, will take them away by convulsions, unless you make resistance with fitting remedies. The male Asp makes two wounds, the female four, as it also happens in the bitings of vipers. Now for that the poysion of Asps congeals the blood in the veins and arteries, therefore you must use against it such things as are
Concerning Poisons, &c.

When as the hurt part became purple, black or green, it is a signe that the native heat is extinct and suffocated by the malignity of the venom. Therefore then it is best to ampute the member, if the partie be able to endure it, and there be nothing which may hinder. Figuratively, that he saw a Mountebank at Flo. A history, who, that he might fell the more of his Antidotes, and at the better rate, let an Apse to bite him by the finger, but he died thereof some four hours after. To the same purpose you may read Matthias, whereas hee writes that those Impostors or Mountebanks to cozen the better, and deceive the people, use to hum and take vi pers and apses long after the spiring, that is, then when they have cast forth their most deadly poifon, then they feed them with means formerly unusual to them, so that by long keeping and care, at the length they bring it to passe, that they put off a great part of their venemous nature, neither being thus satisfied, they make them oftentimes to bite upon pieces of flesh, that so they may cast forth into them the venom which is contained in the membrane betweene their teeth and gums. Lastly, they force them to bite, lick and swallow downe an astringent medicine, which they compose and carry about for the same purpose, that so they may obstrue the passages by which the venom used to flow out, for thus at length their bites will be harmless, or without great danger. This therefore is their art, that so they may sell their counterfeit treacle to the people at a high rate, as that which is most safe reme¬dy against all poifonous bites. Christopher Andrew in his book called against the bites of what cures all venemous treacle, writes, that the lands of Spain are every-where full and stord with serpents, alpes, and all sorts of venemous beasts, against whose bites they never observed or found any benefit in treacle. But the efficacie of the following Antidote is so certain and excellent, and approved by so manifold experience, that in the confidence thereof, they will not bee afraid to let themselues bee bitten by an Alpe. Now this medicine is composd of the leaves of Mullet, Avenes & red Stock Gillyflowers in like quantity, which they boile in sharpe vinegar and the urine of a sound man, and therewith so¬ment the wounded part. Yet if he have not taken nor used any thing of a good while after the wound, it will be better and more certain, if the patient drink three oun¬ces of this decoction fafting two houres before meat.

Have thought good in a true history to deliver the virulent maligni¬city of the bite of a snake, and the remedies thereof. When as King Charles the ninth was at Moulins, Moufier Le Feure, the Kings Physitian, and I were called to cure the Cooke of the Lady of Casteltr, who gathering hoppes in a hedge to make a salad, was bit on the hand by a snake that there lay hid, hee putting his hard to his mouth, sucked the wound to eafe the paine by sucking forth the venom. But his tongue forth with tweltled to bigge, that he could not speak his mind; besides his whole arm, even to his shulder, was in like for somewhat swelled, his paine was so vehement, that it made him twice in my presence, his face was wan and livid like to a dead body, and though I despai¬red of his recovery, yet not suffering him to bee quite forntaken, I washed his mouth with treacle dissolved in aqua vitæ, and gave him some thereof to drink; adding thereto some aqua vitæ. I opened his weale arm with many and depee caracinations, especially in the place where he was hurt, I fowred the blood which was wholly ferous and fanguinious, to flow more plentifully, I washed the wounds with treacle and mithridate dissolved in aqua vitæ, and then I put him exceeding warme in bed, procuring sweat, and making him to lie awake, lest sleep should draw the poifon in¬wards to the entrails. By these meanes the harre prevailed, that on the day after hee was freed from all his maligne symptomes. Therefore I judged it onely remained for
Concerning Poisons, &c.

Chap. XXIV.

Of the bites of Toads.

Though Toads want teeth, yet with their hard & rough gums they so straitly press or pinch the part which they shall take hold on, that they will force their poison thereinto, and so over the whole body by the pores of the pressed part. Moreover, they cast forth their venom by urine, spittle and vomit upon herbes, but chiefly upon Strawberries, which the which they are reported greatly to affect. Hence many suddenly and ignorantly catch their deaths.

I heard from a man of very good credit, that there were two merchants not farre from the Citie Tholoufe, who whilest dinner was providing, walked into the garden that belonged to the Inne, where they gathered some fage leaves, and unwashed as they were, put them into their wine. They had not as yet dined, when being taken with a sudden Vertigo, the whole Inne seemed to run round, then losing their sight, they fell into a fowde, intermixed now and then with convulsions. But they fammered with their lips and tongues becoming blacke; a frownd and horrid look with continuall vomiting, and a cold sweat, the forerunner of death, which presently seized upon them, their bodies becoming exceedingly much swolne. But the Justices of the place suspecting that they were poisoned, made the Inne-kepper and the Guests to be apprehended, being examined, they all constantly & with one voice answered, that the dead parties ate of the same meat and drinke which the rest did, but only that they put fage into their wine. A Physician was asked the question whether fage might be poisioned; he answered, it might: but to come to the purpose, that it must appeare whether any venemous creature had poisioned the plant with his spittle or venemous sanaes. This which was lightly pronounced, and only by conjecture, was by the eye found to bee true. For at the root thereof was found a hole in the ground full of Toads, who got out by putting in of warme water, made it credible that the plant was poisoned by their spittle and urine, whereby you may understand how unwisely they doe, who devour herbes and fruits newly gathered without washing. Also we must take heed left falling asleep in the fields, wee lye not neere the holes which toads or other venemous beasts of the like nature have made their habitation. For thence a venemous or deadly aire may be drawn into the lungs. For the same cause wee must abstaine from eating of frogs in the month of May, because then they engender with toads. Oxen in feeding sometimes lick up small toads together with the grass, which prefently will breed their great harme, for therupon the oxen swell so big, that they often burst withall. Neither is the venom of toads deadly only being taken inwardly, but even sprinkled upon the skin, unless they forthwith wipe the place, & wash it with urine, water & salt. Such as are poisoned by a toad turn yellow, swell over all their bodies, are taken with an Astmaticke difficulty of breathing: a Vertigo, convolution, fwooning, and lastly by death it felle. These to horrid symptoms are judged inherent in the poision of toads, not only by reason of the elementary qualities thereof, coldnes & moisturice, which are chiefly predominant therein: but much rather by the occult property which is apt to putrifie the humors of that body whereto it shall happen. Therefore it will be convenient to procure vomit, especially if the poison be taken by the mouth, to give glysters, & to weaken the strength of the poison by hot and attenuating Antidotes, as treacle & mithridate dissolved in good wine: but in conclusion to digest it by bates, stoves, and much and great exercise. Rondelutins in his book de Pyebus, affirmes the same things of the cursed venom of toads, as we have formerly delivered: yet that they seldome bite, but that they cast forth either their urine, the which they gather in a great quantity in a large bladder, or else their venemous spittle or breath against such as they meete withall, or affaile: besides, the herbs which are tainted by their poisonous breath, but much more...
more such as are sprinkled with their ipittle or urine, are sufficient to kill such as eat them. The Antidotes are juice of betonica, plantaine, mugwort, as also the blood of Tortoises made with flower into pies, and forthwith dissolved in wine, and drunken. Pliny writes that the hearts and spleens of toads resift poison. The vulgar opinion is false, who think that the toad-stone is found in their heads, which is good against poison.

CHAP. XXV.

Of the Stingings of a Scorpion.

Scorpion is a small creature with a round bodic in forme of an egg, with many feet, and a long tail consisting of many joints, the last whereof is thicker and a little longer than the rest, at the very end thereof is a sting, in some two, hollow and replere with cold poison, the which by the biling it calls into the obvious body; it hath five legs on each side forked with strong claws, not unlike to a Crab or Lobster, but the two foremost are bigger than the rest, they are of a blackish or footie colour, they goe a side; and oft-times taken themselves with their mouthes and feet to fall to men, that they can scarce be plucked therefrom. There be some who have wings like the wings of winged Scoc-locus, wafting the corn & all green things with their biting and burning. Such are pinn unknown in France. These flee over divers Countries like winged Ants. This is likely to be true by that which Mathiolus writes, that the husbandmen in Castile in Spain, in diging the earth oft-times finde a swarm of Scorpions, which take theire thither against winter. Pliny writes, that Scorpions laid waft a certaine part of Ethiopia, by chasing away the inhabittants. The Ancients made divers kinds of Scorpions, according to their variety or difference of colours, some being yellow, others browne, redish, 4th-coloured, greene, whitish, blacke, duskie; some have wings, and some are without. They are more or leffe deadly according to the countries they inhabit. In Tuscany and Scythia they are absolutely deadly, but at Trent and in the Land Pharos their stinging is harmleffe. The place stung by a Scorpion presently be- gins to be inflamed, it waxeth red, grows hard and swelle, and the patient is againe pained, hee is one while hot, another while cold, labour pefently wearies him, and his paine is somewhat more and somewhat leffe, he sweats and shakes as if he had an Ague, his hair standes upright, paleneffe discolour his members, and hee feels a paine, as if he were prick't with needles over all his skin, wind dieth out backwards, he strives to vomit and goe to stoole, but doth nothing, he is softed with a continuall fever and fowmung, which at length proves deadly, unless it be remedied. Di- sforides writes, that a Scorpion beaten and laid to the place where he stung, is a reme- dy there to, as also eaten roasted to the same purpose. It is an usuall, but certaine remedy. Di- sforides says, to anoint the stung place with the oy 1 of Scorpions. There be some who drop the wound the milky juice of figs, othe- rs apply thereto Calamint beaten, otherzbe w barly meale-mixed with a decoction of Rue. Snails beaten together with their thels, and laid thereon presentlie afflige paine. Sulphur orem mixed with tarpentine, and applied platter-wite, is good, as also the leaves of rue beaten & laid thereon. In like fort also the herbe Scorpioides, which thence took his name, is convenient, as also a bryony root boiled and mixed with a little sulphur and old oyle. Disforides af- firms: Agrarick in powder or taken in wine to be an Antidote against poiyons, verily it is exceeding good against the stingings or bitings of serpents. Yet the continuall use of a bath stands in stead of all these, as also sweate and drinking wine somewhat alaid. Now Scorpions may bee chafed away by a fumigation of Sulphur and Gallbe. Scorpions can't be fed away with the juice of radifh doth the fame. For they will never touch one that is besmeared with the juice of radifh or garlike, yea verily, they will not dare to come neare him.
Concerning Poisons, &c.

Chap. XXVI.

Of the Stinging of Bees, Wasps, &c.

Bees, Wasps, Hornets and such like, cause great pain in the skin wounded by their stinging, by reason of the curstness of the venom which they send into the body by the wound, yet are they seldom deadly, but yet if they set upon a man by multitudes, they may come to kill him. For this they have sometimes been the death of horses. Therefore because such as are stung by these, by reason of the cruelty of pain, may think they are wounded by a more virulent and deadly creature, I think it not amiss to let downe what signs follow upon their stings. Great pain presently ariseth, which continueth until the stinger left in the part is taken forth, the part becomes red and inflame, and there riseth a pulch or little blister. The cure is, forthwith to sucker the wound very hard, and thereby to draw forth the stings, which if they cannot thus be gotten out, the place, if nothing hinder, is to be cut, or else temper allies with levan or oil, and so apply them: the part also may be very conveniently put into hot water, and there fomented for an hour or two, and at length washed in sea-water. Cæstles beaten and applied, allay the paine and dissolve the humour causing the tumour. Ox dung macerated in oil and vinegar, and applied hot, doth the same. There are some who apply to the part the same creatures beaten, as we formerly said of Scorpions; beans chased and laid to the part affwage paine. Vinegar, honey and salt applied exceeding hot, are good, if besides, you dip a cloth therein, and lay it upon the place; sulphur ointment tempered with spittle hath the same effect. The milkie juice of unripe figs incorporated with honey, is judged very efficac.uall, but it is much the better, mixed with treacle. Wasps will not sting nor bite such as anoint their bodies with the juice of mallowes mixed with oil. They may bee quickly chafted away with the flame of brimstone and such like things. A waspe is said, if thee find a viper dead, to dip her stinger in the others poision, and thence men learned to empoison the heads of their arrowes. The rough and hairy worms, which are commonly called Bear-wormes, especially those which breed about a Pine tree, cause great itching, redncsse & swellinge in the part which they bite, touch or grate upon very hard. A remedy hereof is onions beaten with vinegar, and the rest of the things formerly mentioned.

Chap. XXVII.

Of the Bite of a Spider.

Spiders weave webs with various art, yet in these they alwaies make a lurking hole, fo to lye in waiue to catch the entrapped flyes, and so to prey upon them. There are many forts of Spiders, one is termed Arbegno, round and like a blacke berry, whence it taketh the name; it hath a very small mouth under the midft of the belly, and moft short feet, as if they were imperfect, her bite is as painfull as the stinging of a Scorpion. Another is called Tropus or the Wolfe-spidere, because shee doth not onely lye in waiue to catch flyes, but also bees and waspnes, and all such things as may bee into her webe. The third is named Myrmecon, it is larger than an Ant, but headed like one, the bodie thereof is blacke, and hath white spots or streakes running towards the backe. The fourth kind may bee called Pelipus, in other things resembling a Wasp, but that it wants the wings; of a redbike colour; and living onely on herbs. The Ancients have thought their bites to bee venemous. Now their poision is therefore thought to bee cold, because the symptoms thence arising are winde in the belly, refrigerations of the extreme parts of the body, tumefcie in the bitten part, with sense of cold and shaking. The wound must forthwith be washed with very hot vinegar; then must you lay thereto onions, and
Concerning Poisons, &c.

and such like things beaten, then procure sweat by art, as by bathes and stoves, yet nothing is more effectual than treacle and mirth-rate.

Chap. XXVIII.

Concerning Cantarides and Buprestes.

Anthurides shine as it were with a golden colour, acceptable to the eye, by reason of the mixture of a greenish or greenish colour therewith, yet their smell is ungrateful. They are hot and dry in the fourth degree, and their caustick, corrosive and venemous, not only by reason of their caustick quality, but because of a secret antipathy which they naturally have against the urinary parts; which effects they produce not only if they be taken by the mouth into the body, but even applied outwardly to raise blisters. Such as have taken them inwardly, have the taft of pitch or some thing like sedes, or the rofen of Cedars, in their mouths, it is likely that this taft proceeds from the humours dissolv'd by the putrescent heat in the stomack, guts & liver, and the vapours that thence arise; for taken inwardly, they gnaw, exulcerate and burn all parts from the mouth even to the belly, whence ensues a bloody fluxe, excrements flowing out, which resemble the washings of new killed flesh. Then follows a burning fever, vertigo, madness, the braine being disturbed by the plenty of vapours lifted up from the corroded and burnt parts and humours, which therefore when as they appear, you may know the affect is incurable. In the parts appointed for the receiving and conveyance of the urine they cause a burning inflammation, excoriation, and common ejection of the yard, whence ensues a bloody and painfull strangury, in stead of which there oft-times happens or succeeds an hectic or stoppage of the water, whence a gangrene and mortification of the part, and so in conclusion of the whole body besides. When as Cantarides are taken inwardly, the remedy is vomiting, drinking of Cowes mikes to correct the heat and dryncesse, good also to mitigate the ulcers and stay the dysentery; it is good also to infuse it into the guts by glysters. In stead thereof salade oyle, or oyle of sweet almonds is convenient to retnude the astringency of the poison fastened to the sides of the stomack. The reft and whole cure of this poison you may learn by the following history. A certain whore, the better to enjoy the company of a young Abbot who loved her, entertained him with a banquet, and sprinkled divers of their cates with the powder of Cantarides, to incite him the more to venery. The next day, when as the Abbot cast forth pure blood at his fundament and yard which stood very stiffe, he called some Physicians, who presently by the forementioned symptoms, which were all very apparent in him, understood that he had Cantarides given him; wherefore they purged him upwards with vomits, and downwards by glysters made with French barley rice, decoction of mallowes, seeds of line and fenugreek, oyle of lillies, goats fuel. Then presently after they gave him a little treacle with a good quantity of consomme, which might draw the poison outwards, they gave him milk to drink, and caused him to use injections into the urinary passage and guts made of refrigerating things, as the juice of lettuce, purslane, cucumbers, gourds, melons, of tough and viscid things, that so they might fille the more easilly and long to the ulcerated parts, as the mucilages of pistia, mallowes, quince-feeds, frype of water-lilies, poppies and violers, treacle, milk, and oyle of sweet almonds, and they made him drink oneley barley water, or the common pifian, they let him feede on veale, kid, and porke by boiled with lettuce, purslane, barley and violet leaves, the which by their humidity might relaxe the belly, and by their toughnesse leasifie the toughnesse of either; they applied also refrigerating things to the loines, share and preaurum to affwage the heatre of the urine. At length they put him into a warme bath, and so conclude, they left nothing unattempted to draw forth or weaken the poison. But all their endeavours were in vaine, for the Abbot dyed, not being defitute of remedies conveniently prescribed, but overcome by the comminatory.
Concerning Poyson, &c.

Lib. 21.

Ane, of the malignity of the poyson. The Physicians pains had far better successe in a certain Gentlewoman against this kinde of affect'd, her whole face was deformed with red, fiery, and filthy putties, so that all thunned her company as if shee had beene troubled with a Leprofe, and were ready to forbid her the society of men; shee came to Paris, and calling Hultrins and Grealmus Physicians, meane and Caballus being Surgeons, shee made a grievous complaint, and brought us earnestly for some remedy against to great a deformity of her face; having diligently considered her case, we pronounced her free from a Leprofe; but we judged it fit to apply to her whole face a verificatory of Cantharides, three or foure hours after the application whereof, the medicine being come to worke its effect, her bladder began to burn exceeding-ly, and the necke of her worabe to fwell, with gripings, continuall vomiting, making of water and scowring, a troublesome agitation of the body and members, a burning and absolutely fiery feaver. I forthwith called the Physicians, it was decreed that she should drink wine plentifully, and that it shou'd bee in jetted by the fundament into the guts, and by the ureinary passage into the bladder and the neck of the womb, and that shee should keep her selfe, until the paine were mitigated, in a warrae bath made of the decoction of Line-seeds, the roots and leaves of mallowes, marles, violets, henbane, pursaine and lettuce, and her loynes and genitals should be anointed with oenuguentum rofatum of sopuleon stirred and incorporated with oxy crate. By these meanes, all the symptomes were mitigated. Her face in the interim rose all in a blitter, and much purulent matter came out thereof, and so the deformity, wherewith shee was formerly troubled, vanisshed away for ever, so that within a while after shee was married, and had many children, and is yet living in perfect health.

Bogelies also are of the kinde of Cantharides, being like unto them in shape and faculty. If an Ox or Sheepe or any other creature shall in feeding devoure one of them, hee will presently swell up like a Tunne, whence also they take their name: if a man take them inwardly, hee shall endure the like symptomes as in taking Cantharides, and over and besides both his stomacke and his whole belly shall be wonderfully puffed up, as if he had a Dropifie. It is probable that this inflation like a tympany happeneth by humouris diffus'd and resolved into vapours by the fiery acrimony of the venome: They are to bee cured after the same manner as such as have drinke Cantharides. Lastly, as in all other poysons which are taken into the body, so also here, if the poyson taken by the mouth bee thought as yet to bee in the stomacke, you must then procure vomit, if it bee gotten into the guts, then must it be drawn away by glyfters; if diffused over all the body, then must you make use of such things as may drive the poyson forthe from the center to the circumference, such as are bathes and floves.

C H A P. XXIX.

Of Horse-Leaches.

Orfe-Leaches are also venemous, especially such as live in muddy flinking ditches, for these are leffe hurtfull which reside in clear & pure waters. Wherefore, before they are to bee used in cases of Phylick, they must be kept for some days space in cleane water, that forthey may purge themselves; otherwife they may chance to leave ulcers hard to cure in the places whereunto they shall be applied, and the rather, if they bee violently plucked off, because they by that meanes leave their teeth fastned in the part. Now how which by chance hath swallowed a Horse-leach, must bee asked in what part bee feeth her, that is, the senfe of her fucking. For if shee sticke in the top of the Throate or Gullet, or in the midle thereof, the part shall bee often washed with mustard dissolv'd in vinegar. If shee beeare the orifice of the ventricile, it is fit that the patient by little and little swallow down by style with a little vinegar. But if shee fasten to the stomack, or the bottome of the ventricile, the patient by the plucking of the part shall perceive a certaine senfe of fucking, the patient...
Concerning Poisons, &c.

ent will spie bloud, and will for feare become melancholick. To force her thence, shee shall drinke warme water with oyle, but if shee cannot to bee looted, then shall you mixe Aloes therewith, or some thing enured with the like bitternesse, for shee will by that meanes leave her hold, and to bee cast forth by vomit. You may perceive this by such as are applied to the skinne, on the external parts, for by the aperision of bitter things, whether they bee full or empty, they will forake their hold. Then shall the patient take astringent things, which may stoppe the bloud flowing forth of the bittten part, such is conserve of Rose, with terra sigillata, bole artemisick, and other more astringent things, it neede to require. For if they shall adhere to some greater branch of some vein or artrey, it will bee more difficult to stop the flowing bloud.

But for that not the earth onely, but the sea also produceth venemous creatures, wee will in like fort treat of them, as wee have already done of the other, beginning with the Lampron.

Chapter XXX.

Of the Lampron.

The Lampron, called in Latine Muraena, is a sea fish something in shape resembling a lamprey, but shee is bigger and thicker, and hath a larger mouth, with teeth long, sharpe and bending inwards, she is of a dul- kie colour, distinguished with whitish spots, and of some two cubits length, the Ancients had them in great esteem, because they yield good nourishment, and may be kept long alive, in pooles or ponds, and so taken as the owners please to serve their table, as is sufficiently knowne by the historic of the Roman Graffus.

Shee by her biting induceth the same symptomes as the viper, and it may bee helped by the same remedies. Verily the Lampron hath such familiarity with the Viper, that leaving her natural element, the sea, shee lepeth a shoare, and seeketh out the Viper in her den to joyn with her in copulation, as it is written by Aelius and Nicander.

Chapter XXXI.

Of the Draco-marinus or sea-Dragon.

The sea-Dragon called by the French Viva, for his vivacity (and by the English a Viper, or as some say a Qua-visor) because being taken in fishing and drawne out of the sea, shee is said long to survive. Her pricks are poisonous, but chiefly those that are at the edges of her gils, Which is the reason that Cookes cut off their heads before they serve them up to the table; and at Roven the fishemen lay them not upon their dalles to sell before they have cut off their heads. The wounded part of such as are hurt, paines them much, with inflammation, a fever, fowning, gangrene and deadly mortification, unlese it be quickly withstood. Not very long agoe the wife of Monsieur Fromages, Secretary of the requets, was wounded with a prick of this fish in her middle finger, there followed a swelling and redneffe of the part, without much paine; but perceiving the swelling to encrease, being made more wary by the mischance of her neighbour the wife of Monsieur Barcelonne Lieutenant particular in the Chauffer of Paris, who died not long before by the like accident being neglected, lest for mee; I understanding the caufe of her disafe, laid to her pained finger and her whole hand, besides a purits made of a great onion roasted under the coales, leaven and a little treacle. The next day I wishd her to dip her whole hand into warme water, so to draweforth the poyson, then I divided the skin about it with much fearification, but only superficially; to the gathes I applied Leaches, which by fucking drawing a
sufficient quantity of blood, I put thereto treacle dissolved in aqua viva. The next
day the swelling was affwaged, and the paine eased, and within a few daies theee was
perfectly well. Dioscorides writes that this fih divided in the midst and applied to
the wound, will cure it.

CHAP. XXXII.

Of the Pastinaca marina, or Sting-Ray, which some call the Fierce-claw.

The symptoms. Ich as are stung by a Sting-Ray (as Aetius hath written) the place of the
wound doth manifestly appeare; there ensues thereon lasting paine and
the numbness of the whole body. And seeing that it hath a sharpe and
fierce sting, whereby the nerves by the deepeffe of the stroke may be
wounded, it doth happen that some die forthwith, their whole bodies suf-
fering convulsions. Moreover it will kill even the very trees into whose roots it is fast-
ned. Yet Pliny affirms that it is good against the paine of the teeth, if the gums bee
scarified therewith, yea, and it being made into powder with white hellebore, or of
it selfe, will cause teeth to fall out without any pain, or any violence offered to them.
This fish is good meat, the head and tail excepted; some of them have two stings,
other some but one; these stings are sharpe like a Saw with the teeth turned towards
their heads. Oppianus writes, that their stings are more poysonous than the Persians
arrowes, for the force of the poyson remaineth, the fish being dead, which will kill
not onely living creatures, but plants also. Fishermen, when they catch this fish, pref-
ently spoile him of his sting, lest they should bee hurt therewith. But if by chance
they bee hurt therewith, then take they forth his Liver and lay it to the wound;
furthermore the fish being burnt and made into powder, is the true Antidote of his
wound. The Sting-Ray lives in muddy places near to the shoare, upon the fishes that
hee hunteth and catcheth with his sting, having the teeth thereof turned towards
his head for the same purpose. Hee is not unlike a Ray, and I have here given you
his figure.
Of the Lepus marinus, or Sea-hare.

P L A Y calls the Sea-hare, a maffe or deformed piece of flesh. Galen faith that it is like a Snaille taken forth of the shell. It is exceeding poysonous in the judgement of the Antients; wherefore it is not amisse to set downe the description of it, lest wee might eate it at unawares, too earnestly view it, or smell thereto, as also that we may use it against the poyson thereof: it is an inhabitant not only of the Sea, but also of Lakes of Sea-water, especially such as are muddy; it is of the same colour as the hair of the land-hare is, it hath a hole in the head, out of which hee putteth a certaine piece of flesh, and pluckes it backe againe when as hee is seen. Paulus, Actius, Pliny, Galen and Nican-der, are of one opinion, and agree in this, that if a woman big with child doo too earnestly look upon one, she will vomit, & presently after abort. They which have drunk this poyson, faith Dioscorides, are troubled with paine in the belly, and their urine is stopped. If they doe make water, then is it bloody; they run downe with stinking sweat, which smels of fish; a cholericke vomiting sometimes mixed with blood ensues thereon.

Actius writes that all their bodies turne yellow, their faces swell, and their fecete, 'The symptoms' but chiefly their genitall member, which is the cause they cannot make water freely. Galen writes that it is the property of the Sea-hare to exulcerate the Lungs. Their Antidote is Aeffes milke, Muskeding, or honied Wine continually drunken, or a decoction of the roots and leaves of Mallowes. It is good for the falling away of the hair. I have here given you the figure thereof out of Rondaleius his book of finer.
Of the Poison of Cats.

Not only the brain of a Cat, being eaten, is poisonous and deadly to man, but also its hair, their breath, yea and their very presence to some prove deadly. For although any hair devoured unawares, may be enough to choke one, by stopping the instruments of respiration, yet the haires of cat by a certaine occult properie, are judged most dangerous in this case: besides also, their breath is infected with a certain hurtful malignie. For Mathiolus faith that he knew some, who being so delighted with Cats, that they could never go to bed without them, have by so often drawing in the aire with their breath, fallen into a conflagration of the Lungs, which occasioned their death. Moreover, it is manifest that the very sight of their eies is hurtful, which appeares by this, that some but seeing or hearing them, presently fall downe in a swoone; yet I would not judge that to happen by the malicious virulence of the Cat, but also by the peculiar nature of the party, and a quality generated with him, and sent from heaven. When as, faith a certaine Germaine in winter time, came with us into a stove to supper, where as were divers of our acquaintance; a certaine woman, knowing this mans nature, lest that hee should see her kinling which she kept, and so trouble her, as she should be quiet untill the Cat was taken away. But such as have eaten the brains of a Cat are taken with often Vertigoes, and now and then become foolish and mad; they are helped by procuring vomit, and taking the Antidote against this poison, that is, halfe a Scruple of Muske, dissolved and drunke in wine. There be some who prescribe the confection Dianaelbow to be taken every morning, four hours before meat. By this you may gather that it is not so fabulous that the common report, that Cats will kill or harrow children; for lying to their mouths with the weight of their whole bodies, they hinder the passage forth of the fuliginous vapours, and the motion of the Cheef, and infect and flite the spirits of tender infants, by the pestiferous aire and exhalution which they send forth.

A Cat haire most subject to choke.

The breath of a Cat most hurt. full to the lungs.

A history. A wonderfull antipathy betweene a man and a Cat.

The Antidote against the brains of a Cat are dangerous for children.
Concerning Poisons, &c.

Of certaine poisonous Plants.

Having described the poisons that come from living creatures, I come to speake of such as are from Plants, beginning with the Sardonian herb, which is also called Apium rufus; this is a kinde of Rumiculcis or Crow. Apium rufus.

foote: (and, as it is thought, the round leaved water Crow foote, called Marth-crow-foote or Speare-wort) it taketh away the understanding of such as eate thereof, and by a certaine diffention of the nerves, contracts the chekes, so that it makes them looke as if they laughed; from this affect came that proverbiall speche of the Sardonian laugher, taken in evil part. His Bezoar, as one may terme it, is the His Antidote.

The juice, fruit, and substance of Nappellus, taken inwardly, killeth a man the same day, or at the farthest in three dayes: yet such as eate the deadly force thereof by the speeedy and convenient use of Antidotes, fall into a heatezie feaver, or consumption, or become subject to the falling fecknefe, as Avicen affirmeth. And hence it is that barbarous people poyst on their arrowes therewith. For the lippes are forthwith inflamed, and the tongue doth swells, that by reason thereof it cannot bee contained in the mouth, but hangs out with great hantour; their eyes are enflamed, and stand forth of their head, and they are troubled with a Festigo and fowingly, they become so weak that they cannot fitte their legsges, they are swooned and puffed in their bodies, the violence of the poyston is so great. The Antidote thereof is a certaine little creature like a * Moife, which is bred, and lives on the root of Napella, being dryed and drunke in ponder, to the weight of two drammes. In want hereof, you may use the feed of Raddish or Turnips to drinke, and anoint the body alfo with the oyle of Scorpions.

Dorycium and Solanum Maniacum, or deadly night shede, are not much different in their mortall symptoms or effects. Dorycium being drunke, resembles milk in taff, it caueth continual hicketting, it troubl Hath the tongue with the weight of the humour, it caueth blood to bee cast forth of the mouth, and certaine mucous matter out of the belly, like that which commeth away in the bloody fluxe. A reme- dy hereto are all fheil Fisches, as well crust as rosted, alfo sea-lifhers and crabbes, and the broth or liquor wherein they are boyled, being drunke. Now the root of Tisymptoms, Solanum Maniacum, drinketh in the weight of one dram in wine, caueth vaine and not uplinging imaginations, but double this quantity caueth a disfuration or alienation of the minde for three dayes; but fourteene times fo much, kills. The remedies are the fame as thefe preferred against Dorycium.

Henbane drunke, or other wise taken inwardly by the mouth, caueth an alienation of the minde like drunkennes; this alfo is accompanied with an agitation of the body, and exclusion of the spirits like fowing. But amongst others, this is a nota- ble symptome, that the patients do fune, that they thinke themfelves to be whipped: whence their voice becomes fo various, that fourtimes they bray like an affe or mule, neigh like a hore, as Avicen writes. The Antidote is pilfick or sun eaten in great quantifies: the Antidote is pilfick or sun eaten in great quantifies; treacle alfo and mithridate dissolved in facke, alfo wormwood, rue and milket.

Of Mufhromes, fome are deadly and hurtfull of their owne kinde and nature, as Mufhromes, thofe, which broken, prettily become of divers colours, and forthwith putrefie: (such as Pflod poffe are which be found of a grayish or blewe colour) others though not hurtfull in qualitie, yet eaten in greater measure than is fittinge, become deadly; for seeing by nature they are very cold and moift, and consecutively abound with no small viſcosity, as the excrementitious phlegme of the earth or trees whereon they grow, they lufocate and extinguish the heat of the body, as overcome by their quantite, and strangle as if one were hanged, and laftly kill. Verily I cannot chufe, but pitying Gourmondizers, who though they know that Mufhromes are Multum,   Yyy the
Concerning Poisons, &c.

Their Antidote.

Ephemerum, which some call Calceicum or Bulbus flosuebris, that is, medow faffron, being taken inwardly, causeth an itching over all the body, no otherwise than thofe that are nettled, or rubbed with the juice of a Squill. Inwardly they teafe gnawings, their fmutack is troubled with a great heaviness, and the difeafe encreafing, there are fneakes of blood mixed with the excrements. The Antidote thereof is womans milke, Affes or Cowes milk drunken warme, and in a large quantity.

Mandrago taken in great quantity, either the root or fruit caufeth great fleeceiffe, fadeneffe, refolution and languishing of the body, fo that after many ftirches and gripings, the patient falls afleep in the fame ftate as hee was in, juft as if hee were in a Lethargie. Wherefore in times past they gave Mandrago to luch as were to bee diſmembre. The apples, when as they are ripe, and their seeds taken forth, may be fafely eaten, for being green and with their seeds in them, are deadly. For there refieth an in tolerable heat, which burns the whole Surface of the bodie, the tongue and mouth warme dry, by reason whereof they gap continually, fo to take in the cold aire, in which caufe unleffe they be prefently helped, they die with convulsions. But they may be easily helped, if they hall prefently drink fuch things as are convenient therefor. Among which in Consolatoris opinion, excellent radifh seeds eaten with falt and bread for the space of three daies. Sneezing shall be procured, if the former remedy do not quickly refrehf them, and a decoction of Coriander or Penny-royall in faire water hall be given to them to drink warme. The ungrateful full tafte of the juice of blanke poppy, which is termed opium, as alfo of Mandrago, eazily hinders them from being put into meate or drinke, but that they may be difcerned, and chiefly for that neither of them can kill, unleffe they be taken in a good quantity. But because there is danger, left they bee given in greater quantity than is fitting by the ignorance of Ilytians, or Apothecaries, you may by these fignes finde the error.

The cure.

Opium. When used in poisons.

Hemlocke drunken, caufeth Vertige; this troubleth the minde, fo that the patients may bee taken for mad men; it darkeneth the sight, caufeth hicketing, and bennus the extra fpaces, & faddle triangles with convulsions, by opprefting or ftopping the breath of the Arterie. Wherefore at the first, as in other poifons, you must endeavour to expell it by vomit; then inject glyfsters, to expell that is got into the guts; thenufe wine without mixture, which is very powerfull in this cafe. Peter Apollinis thinks the Bezoar or Antidote thereof to bee a portion of two drams of Treccele, with a decoction of Diletannum or Gentian in wine. He which further defires to enferm felfe of the effects of Hemlocke, let him read Mathiarius his commentary upon Dioscorides, where as he treats of the fame in his own. Acoutium called fo of Acutus a towne of the Periandrites, whereas it plentifully growes. According to Mathiarius, it kills Wolves, Foxes, Dogges, Cats, Swine, Panthers,
Concerning Poisons, &c.

L I B. 21.

Concerning Poisons, &c.

807

thers, Leopards, and all wild beasts, mixed with flesh, and so devoured by them, but it kills mice by only smelling thereto. Scorpions, if touched by the root of Aconite, grow numm and torpid, and so die thereof; arrows or darts dipped therein, make uncurable wounds. Those who have drunk Aconite, their tongue forthwith waxeth sweet with a certaine affriction, which within a while after turneth to bitterness; it causeth a Vertigo, and shedding of tears, and a heaviness or strainness of the chest and parts about the heart; it makes them break wind downwards, and makes all the body to tremble. Pliny attributes so great celerity and violence to this poison, that if the genitals of female creatures be touched therewith, it will kill them the same day; there is no prefenter remedy than speedy vomiting after the poison is taken. But Conciliator thinks Aristolochia to be the Antidote thereof. Yet some have made it useful for man by experimenting it against the stinging of Scorpions, being given warme in wine. For it is of such a nature, that it killeth the party unlehe it findeth something in him to kill; for then it strives therewith as if it had found an adversary. But this fight is only when as it finds poison in the body; and this is marvellous, that both the poisons being of their own nature deadly, should dye together, that man may by that means live. There are divers sorts thereof, one whereof a flower like an helmet, as if it were armed to mans destruction; but the other here delineated hath leaves like to lowes-bread, or a cucumber, and a root like the tail of a scorpion.

The figure of a certain kind of Aconite.

Trees also are not without poison, as the Yew and Walnut tree may winne. If a man eat of the leaves of Yew, he is killed therewith. But men, if they sleep under it, or sit under the shadow thereof, are hurt therewith, and oftentimes dye thereof. But if they eat it, they are taken with a bloody flux, and a coldness over all their bodies, and a kind of strangling or stoppage of their breath. All which things the Yew caueth not so much by an elementary and cold quality, as by a certaine occult malignity, whereby it corrupteth the humours, and thaveth the

* This is true in

four countries,

in Provence,

Italy, Germany,

and in Russia.

Y v v s
Concerning Poisons, &c.

Chap. XXXVI.

Of Bezoar, and Bezoartick medicines.

For that we have made mention of Bezoar, in treating of the remedies of poisons, I judge I shall not doe amiss, if I shall explicate, what the word means, and the reason thereof. Poison absolutely taken is that which kills by a certaine specifick antipathy contrary to our nature. So an Antidote or Counter-poison is by the Arabians in their mother tongue termed Bezedahar, as the preservers of life. This word is unknowne to the Greeks and Latines, and in use only with the Arabians and Persians, because the thing it selfe first came from them, as it is plainly shewed by Gerasius horn, Physician to the Vice- Roy of the Indies, in his history of the Spices and Simples of the East-Indies. In Persia (faith hee) and a certaine part of India is a certaine kind of Goat called Pazain (wherefore in proper speaking, the stone should bee termed Pazar, or Pazain) the colour of this beast is commonly reddish, the height thereof indistinct, in whose stomack concretes the stone called Bezoar, and grows by little and little about a straw or some such like substance in scales like to the scales of an onion, so that when the first scale is taken off, the next appears more smooth and shining as you still take them away, the which amongst others is the signe of good Bezoar and not adulterate. This stone is found in sundry shapes, but commonly it resembles an Acorne or Date-stone; it is sometimes of a fanguine colour, and other times of a hony-like or yellowish colour, but most frequently of a blackish or dark green, resembling the colour of mad Apples, or else of a Civet Cat. This stone hath no heart nor kernel in the midst, but Powder in the cavity thereof, which is also of the same faculty. Now this stone is light, and not very hard, but so that it may easily be scraped, or rasped like alabaster, so that it will dissolve being long macerated in water; at first it was common amongst us, and of no very great price, because our people who trafficked in Persia, bought it at an easie rate. But after that the faculties thereof were found out, it began to bee more rare and deare, and it was prohibited by an Edict from the King of the countrey, that nobody should sell a Goat to the stranger Merchants, unless he first killed him, and took forth the stone, and brought it to the King. Of the notes by which this stone is tried, (for there are many counterfeits brought in) the first is already declared; the other is, it may bee blowne up by the breath, like an oxes hide, or if the wind break through, and doe not flay in the density thereof, it is accounted counterfeitt. They use it, induced thereto by our example, not onely against poisons, but also against the bites of venemous beasts. The richer sort of the Countrey purge twice a yeare, to wit, in March and September: and then, five daies together they take the powder of this stone macerated in Rose-water, the weight of ten grains at a time: for by this remedy they thinke their youth is preserved, as also the strength of their members. There be some who take the weight of thirty grains; yet the more wary exceed not twelve grains. The same author addeth that he used it with very good success in inveterate melancholy diseasess as the itch, leach, tetters & leprosy; therefore by the same reason it may well be given against a quartaine feaver. Besides, hee affirmeth for certaine that the powder contained in the midst of the stone, put upon the bites of venemous beasts, presently freeth the patient from the danger of the poison, as also applied to pestilent Carbuncles when they are opened, it drawes forth the venome. But because the small pox
Concerning Poisons, &c.

B. lu 

M. (Concerning Vqufons, &c.)

Poisons and measles are familiar in the Indies, and oft-times dangerous, it is there given with good success, two graines each day in Rose-water. Mathioli subcribeth to this opinion of Garcia, without anything that hee hath found it by frequent experience, that this thorne by much exceeds not only other simple medicines of this kind, but also such as are termed theriacals, and what other Antidotes forever. Hereto also contents Abdalmarach; Wee (faith he) have seen the thone which they call Bezahar, with the fones of Almirama the observer of the Law of God; with which thorne hee brought a stately and almost princely house at Corduba.

Some yeares agoe a certaine Gentleman, who had one of these ftones which hee had brought out of Spaine, bragged before King Charles then being at Clermont in Auverne, of the most certaine efficacie of this thone against all manner of poisons. Then the King asked of mee, whether there were any Antidote which was equally and in like manner prevalent against all poisons? I answered, that nature could nor admit it, for neither have all poisons the like effects, neither do they arise from one cause, for some workes from an occult and specificke property of their whole nature, others from some elementary quality which is predominant. Wherefore each must be withstood with its proper and contrary Antidote, as to the hot, that which is cold, and to that which assails by an occult property of forms, another which by the same force may oppugne it, and that it was an easie matter to make such a distillation of such as were condemned to bee hanged. The motion pleased the King, there was a Cooke brought by the Jailor who was to have been hanged within a while after for stealing two silver dishes out of his masters house. Yet the King desired first to know of him, whether hee would take the poison on this condition, that if the Antidote which was predicated to have singular power against all manner of poisons, which should bee presently given him after the poison, should free him from death, then he should have his life saved. The Cooke answered cheerfully, that he was willing to undergo the hazarde, yes, and greater matters, not only for to save his life, but to shun the infamy of the death he was like to be adjudged to. Therefore he then had poiton given him by the Apothecary that then waited, and presently after the poison, some of the Bezahar brought from Spain, which being taken down, within a while after hee began to vomit, and to avoid much by stool with grievous torments, and to cry out that his inward parts were burnt with fire. Wherefore, being thirsty, and desiring water, they gave it him; an hour after, with the good leave of the Jailor, I was admitted to him; I found him on the ground going like a beast upon hands and feet, with his tongue thrust forth of his mouth, his eyes sere, vomiting, with store of cold sweats, and lastly, the blood flowing forth by his ears, nose, mouth, fundament and yard. I gave him eight ounces of oil to drink, but it did him nogood; for it came too late. Wherefore at length hee died with great torment and admission, the seventh hour from the time that hee rooke the poison being scarcely past. I opened his body in the presence of the Jailor and suere others, and I found the bottome of his stomacke blacke and dry, as if it had been burnt with a Caustery; whereby I understood he had sublimate given him; whose force the Spanish Bezahar could not repreff, wherfore the King commanded to burne it.

Chapter XXXVII.

Of Minerales or Poisons.

Minerales or metallis are either taken forth of the bowels of the earth, or else from fornaces. Of these many are poisonious, as arsenicke, sublimat, limpet, erussus, lytharge, verdigrasse, orpiment, filings of Iron, brasse, the lead-stone, lime, and the like. Such as have taken sublimat, the tongue and jaws become straightened and rough, as if they drank the juice of unripe services you cannot amend this asperity with lente gargantines but with much labour and time; for as soon as it descends into the stomacke it flicketh to it. Therefore presently after it frets and exulcerates, it causteth unquenchable.
Concerning Poysons, c.

Concerning Poisons.

Venome.

Verdegras.

Litharge.

The scales of 

brass.

The Leadstone.

Filings of Lead
&c.

Arsenic, Poisoner or Rat-bane.

Unquencht Lime and Orpiment.

Acqua fortis.

Ceruse.

Plaster.

able thirst, and unexplicable torments; the tongue is (swolne, the heart faints, the urine is suppreft, the cheeff can scarce performe the office of breathing, the belly is gripped, and so great pains happen to the other extreme parts, that unless they bee helped, the patient will die; for presently will grow upon them, unless it be speedily hindred, the devouring and fierce furie of the poyfon, rendring or eating into the guts and stomacke, as if they were seared with an hot iron, and bloody deweth forth of the ears, nose, mouth, orenarie pasflage and fundament, and then their cafe is desperate. These who elle foever shall take any corroding poyfon, shall be cured with the same remedies, as thole that have taken Cantharides.

Verdegrasce do stopps the instruments of respiration, that it strangles such as have taken it. The cure is performed by the same remedies as helpe those that have taken Arsenick.

Litharge causeth a heaviness in the stomack, supprefteth the urine, makes the body swelled and lividive. We remedy this, by giving a vomit presently, then after it pidgeons dung mixed in strong wine, and fo drunk. Peter Apomnephis will have to give oyle of sweet almonds and figs. Also it is good to give relaxing and humecting glynisters, and to anoint the belly with fresh butter, or oyle of lillies.

The scales of brass drunk by troubling the stomacke, cause a casting and fouering. The remedy is, if the patient forthwith vomit, if he enter into a bath made of the decoction of scales, if he anoint his belly and breath with butter and oyle of lillies, and inject laxative and humecting glynisters.

The Leadstone makes them mad that take it inwardly. The Antidote thereof is the powder of gold and an emerald drunk in strong wine, and glynisters of milk and oyle of sweet almonds.

The filings of lead, and the scales or refuse of iron, cause great torment to such as take them down. The which we helpe with much milk and fresh butter dissolved therein, or with oyle of sweet almonds drawn without fire, with relaxing and humecting glynisters used untill the paine be perfectly allwaged.

Unquencht Lime and Orpiment drunk, gnaw the stomacke and guts with great tormenting paine, and cause unquenchable thirst, an aperty of the jaws and throat, difficulty of breathing, stoppage of the urine, and a bloody flux. They may bee helped by all fat, humecting, and relaxing things which retend the acrimony, by lenitive potions, and such things as lubricate the belly, as also by creams, and the mucilages of some seeds, as with a decoction of the seeds of Line, mallowes, marsh-mallowes and other such things set downe at large in the cure of Cantharides.

Yet it may be helped by the meanes prescrib'd against unquencht Lime and Orpiment.

Acqua fortis.

Ceruse caueth hicketting and a cough, makes the tongue dry, & the extreme parts of the body numbe with cold, the eyes heavie to the eyes. The patients very often in the midft of the day see some vain phantatie or apparition, which in deed is nothing; they make a blacke and oft-times bloody water, they die strangled unleffe they bee helped. The Antidote, in the opinion of Astinus and Nauicen, is carminon drunk in newe wine, or bony and wine, and other diuretick things, and fuch things as procure vomit, and purge by tfoole.

Plaster, because it concreateth and becommeth styony in the stomacke, causeth strangula-
Concerning Poisons, etc.

CHAPTER XXXVIII.

Of Quick Silver.

Quick silver is so called because it resembles silver in the colour, and is in the small of a spirit or living foule. There is a great controversy amongst authors concerning it. For most of them affirm it hot, amongst whom is Galen, Halybas, Rhazes, Arishtale, Constantine, Joach, Platerius, Nicholas Maffa; they maintain their opinion by an argument drawn from things helping and hurting; besides from this, that it is of such subtle parts, that it penetrates, dissolves, and perforates all the actions of heat upon dens and hard metals; to wit, it attenuates, incident, dryeth, causteth inflammation by the mouth, purgeth by the toole, moveth urine and sweat over all the body, neither doth it stirre up the thinner humours only, but in like sort the whole, tough and viscous, as those which have the Lues Venerea, by experience, and either in ointments or plasters.

Others affirm it very cold and moist; for that put into emplasters and so applied, it affwageth paine by stupefaction, hindring the acrimony of putrescent and choleric inflammations. But by its humidity it penetrateth firrouth tumours, dissolveth and dissipateth knots and thick knobs; besides, it causteth the breath of such as are anointed therewith to thinke, by no other reason, than that it purrificeth the obvious humours by its great humidity. Autens experiment confirms this opinion, who affirmeth, that the blood of an ape that drank Quicksilver was found concrete about the heart, the carcasse being opened. Matthiolus, moved by these reasons, writes in his De Solubilibus, that Quicksilver killeth men by the excessive cold and humid quality, it taken in a ny large quantity, because it congeales the blood and vital spirits, and at length the very substance of the heart, as may bee understood by the history of a certaine Apo-thecary, let downe by Conciiliator, who, for to quench his feverish heat, in stead of water, drinke off a glasse of Quicksilver, for that came first to his hands; he dyed within a few hours after, but first he evacuated a good quantity of the Quicksilver by toole, the residu was found in his stomack being opened, and that to the weight of one pound; besides, the blood was found concrete about his heart. Others use another argument to prove it cold, and that is drawn from the composition thereof, because it consists of lead and other cold metals. But this argument is very weak.

For unquenched Lime is made of flints and stony matter, which is cold, yet nevertheless exceeds in heat. Paracelsus affirmeth that quicksilver is hot in the interior substance, but cold in the exterior, that is, cold as it comes forth of the mine. But that coldness to bee lost as it is prepared by art, and heat only appear to appeare and bee left therein, so that it may serve in stead of a tincture in the transmutation of metals. And verily it is taken for a rule amongst Chymists, that all metals are outwardly cold, by reason of the wetary substance that is predominant in them; but that inwardly they are very hot, which then appeareth when as the coldness together with the moysture is segregated, for by calcination they become caustick. Moreover many accounts quicksilver poysion, yet experience denies it. For Marcius Sandus in his Tract decosa tane tells that hee saw a woman, who for certaine causes and affection, would at several times drink one pound and an halfe of quicksilver, which came from her Against by toole without any harme. Moreover he affirmeth that hee had knowne sundry who in a desperate Cholick (which they commonly call miferere ma) have beene freed from imminent death, by drinking three pounds of quicksilver with water only. For by the weight it opens and unfolds the twined or bound up gut, and thrusts forth the hard and stopping excrements; he addeth that others have found this medicine...


Concerning Poisons, &c.


dicine effectual against the cholicke, drunk in the quantity of three ounces. 

\(\text{Antonius Maja writes, that hee usually giveth quicksilver to children ready to die of the wormes.}\)

\(\text{Aureus confirmeth this, averring that many have drunk quicksilver without any harme, wherefore hee mixeth it in hisointments against fcaules and feabs in children, whence came that common medicine amongst the country people to kill lice by anointing the head with quicksilver mixed with butter or asassa.} \)

\(\text{Mitholus affirmeth that many think it the last and chiefeft remedy to give to women in travaile that cannot be delivered.} \)

\(\text{I gave to a whelp a pound of quicksilver, which being drunk downe, it voyded without any harme by the belly.} \)

\(\text{Whereby you may understand that it is wholly without any venemous quality.} \)

\(\text{Verily it is the onely and true Antidote of the Luces Venereos, and also a very fit medicine for maligne ulcers, as that which more powerfully impugnes their malignity than any other medicines that work onely by their first qualities.} \)

\(\text{Besides, against that contaminacious scabbe, which is vulgarly called MalumSaneti manis, there is not any more speedy or certaine remedy.} \)

\(\text{Moreover Guido writes, that if a plate of lead bee smeared or rubbed therewith, and then for some space laid upon an ulcer, and conveniently fasting, that it will foften the callous hardneffe of the lips thereof, and bring it to cicatrization, which thing I my selfe have oftentimes found true by experience.} \)

\(\text{Certainly before Guido, Galen much commended quicksilver against maligne ulcers & cancers. Neither doth Galen affirm that lead is poisonous, which many affirm poiyonous, because it consists of much quicksilver} \)

\(\text{but hee onely faith thus much, that water too long kept in leaden pipes & cifernes, by reason of the droffinenesse that it ueth to gather in lead, caufeth bloody fluxes, which also is familiar to bracie and copper. Otherwise many could not without danger bear in their bodies leaden bulletrs during the space of so many yeares, as usuallly they doe. It is declared by Theodorece Herve in the following histories, how powerfull quicksilver is to resolve and allwage paines and inflammations. Not long since, (faith hee) a certaine Doctor of Phystick his boy was troubled with paratides, with great swelling, heat, pain & bearing, to him, by the common content of the Physicians there present, I applied an anodine medicine, whose force was so great, that the tumor manifeftly subfided at the first dressing, and the paine was much allwaged. At the second dressing all the symptoms were more mitigated. At the third dressing, I wondering at the so great effects of an Anodine Cataplasme, observed that there was quicksilver mixed therewith, and this happened through the negligence of the Apothecarie, who mixed the simple Anodine medicine prescribed by us, in a mortar wherein but a while before he had an oyntment whereinto quicksilver entred, whose reliques, and some part thereof yet remained therein. This which once by chance succeeded well, I afterwards wittingly and willingly used to a certaine Gentewoman troubled with the like diseafe, posoffing all the region behind the ears, much of the throat, and a great part of the cheek, when as nature helped by common remcdeies, could not evacuate neither by resolution nor suppuration, the contenied matter greatly vexing her with paine and palfation. I to the medicine formerly used, by the content of the Physicians, put some quicksilver, to within a few dayes, the tumour was digested and resolved. But some will faie, it resolves the strength of the nerves and limbs, as you may fee by such as have bene annoyed therewith for the Luces venereos, who tremble in all their limbs during the rest of their lives. This is true, if any ufe it too intemperately without measure, and a diseafe that may require so great a remedy, for thus we fee that Gilders, Plumbers and such as digge in mines, \(\text{by the continuall} \)

\(\text{afcenf of the vapours of quicksilver to the braine, the fountaine of the nerves, by} \)

\(\text{resolving the spirits, and dissipating the radical and subflantiefe moysture, maketh them subjec to the trembling of their joints. Verily if it bee killed and incorporeate} \)

\(\text{with hogs greace, and a lift befreame therewith, which may encompass the body like a girdle, it will drive away lice, fleas and simillies, and annoyed about the navell, it killes the wormes in the guts. There are two forts of quicksilver, the one natural,} \)

\(\text{the other artificial. The natural is found running or flowing in the veins and bowels of the earth, and amongst metals, and in the fornaces of silver mines. The Artificial} \)

\(\text{is obtained by heating and zealing the quicksilver in a certaine place, and the same} \)

\(\text{is after used in the same manner.} \)

\(\text{There are} \)

\(\text{two sorts of quicksilver,} \)

\(\text{the one natural,} \)

\(\text{the other artificial.} \)

\(\text{The natural is found running or flowing in the veins and bowels of the earth,} \)

\(\text{and amongst metals, and in the fornaces of silver mines. The Artificial} \)

\(\text{is obtained by heating and zealing the quicksilver in a certaine place, and the same} \)

\(\text{is after used in the same manner.} \)
L/1B.2I.

Concerning Poisons, &c.

813

Purification is made of minium (as it is in Vitruvius) and of the powder of Ivory. Also it is probable that by art it may be extracted out of all metals, but chiefly out of Lead and Cinnebar. You may easily distinguish these kinds by the dull and blackish colour, tough and gross substance, which as it runs, leaves an impression like melted grease, being as it were the excriment of lead. The best quicksilver of all is pure, clear, thin and very white; it may be cleansed with the drostle of Lead, and becomes more thin, being boiled in sharpe vinegar, with sage, rosemary, time, lavender. Or else give it by a pound at a time to a whelpke, to drinke downe, and being cast forth by it, Boyle it againe in vinegar, for thus it hath wondrous faculties, and slyly produces marvellous effects; nothing is more contrary thereto than fire. For quicksilver, though of its owne nature pondeous, flyeth upwards by the force of the fire, and forfaketh gold by that means, than which nothing is more friendly to it.

Chap. XXXIX.

of the Unicornes Horne.

Here are very many at this day who think themselves excellently well armed against poysen and all contagion, if they be provided with some power of Unicornes horne, or some infusion made therewith. Therefore I have thought it good to examine more diligently how much truth this inveterate, and grounded opinion hath. The better to perfumre this taske, I will propound three heads, whereunto I will direct my whole discourse. The first shall be of the signification of this word Unicorn. The second, whether there be any such thing really and truly so called, or whether it bee not rather imaginary, like as the Chymeras and Tragelaphus? The third, whether that which is sayd to be the horne of such a beast, hath any force or faculty against poysons? For the first, that is, the name, it is somewhat more obscurc what the word (being Licorne) in French may signify, than what the Latin or Greek word is. For the French name is further from that word and signification, but it is so clear and manifft, that this word *licorn*, amongst the Latines signifies a beast having but one horn, as it is vulgarly known, the same thing is meant by the Greek word *Monoceros*. But now for the second, I thinke that beast that is vulgarly called & taken for an Unicorn, is rather a thing imaginary than really in the world. I am chiefly endowed to believe thus, by these conjectures. Because of those who have travelled over the world, there is not one that professeth that ever he did see that creature. Certainly the Romans conquering the world, & being most diligent searchers after all things which were rare and so excellent, if any where in any corner of the world, this beast could have been found, they would have found it out, and engraveth upon their coins, or Armes, as they did Crocodiles, Elephants, Eagles, Panthers, Lyons, Tygers, and other creatures unknowne to these countries. For thefe that have wrighten of the Unicorn, either that they have heard, or that they have been delivered by tradition, or what they in their owne minds and fancies have conceived, you shall scarce finde two that agree together, either in the description of the body, or in the nature and condition of her. Pliny writes, that Unicorns are for the fashion of their bodies like to a horse; that is, *cardane* interprets it, of the bignesse of a horse, with the head of an Hare, the feet of an Elephant, the talle of a Boar, with one black horne in the midit of his forehead, of the length of two cubits. *Manser* who (as Mathiolius saith) never saw Unicorns besides painted ones, doth on the contrary affirmre them not to be of the bignesse of an horse, but of a hind calfe of three moneths old, not with feet like an Elephant, but clefle like those of goats, with an horne not only of two, but oftentimes of three cubits long, of a wazell colour, with a necke not very long, nor very hairy, but having few and short haires hanging to the one side of the necke, the legs are leane and small, the buttocks high, but very hairy. *cardane* differnting from both these, writes, that he hath an horne in the midit of his forehead, but that it is only the length of three fingers,
Concerning Potions, &c.

fingers. Andrew Thevet mentions an Unicorne seen by a certain Turkish Sangjach, which was of the bigness of a Bull of five or six monthes old, and had one horn, but that not in the midst of the forehead, but upon the top of the crown of the head; he was legg'd and footed like an Asle, but longer haired, and had ears not much unlike the Rangifer, a beast not unknowne in the subpolar or northern countries.

Thus various therefore is the report concerning the shape of this Beast. Neither is there either difference concerning her nature and conditions. For Pliny writes that the Unicorne is a most fierce beast, and hath a great bellowing voice, and that shee cannot therefore be taken alive. Cardan renders a reason of this fierceness, Becaufe (faith he) it inhabits the defarts of Aethiopia, a region equalide, and filthy, abounding with toads and such like venomous creatures. Others on the contrary affirme her to bee of a most milde, amiable, and gentle nature of all others, unless one purposely offend her, or use her too harshly; for feeding shee feeds nor by stooping her head to the ground, because shee is hindered therefrom by the length of her horn, shee must necessarily feed upon the fruit that hangeth upon trees out of cratches or mans hand shee fearefully and harmlessly takes all manner of fruits, herbs, sheaves of corn, apples, pears, oranges and pulse. And herein they have proceeded to farre, that they feign they will love Virgins, enticed by their beauty, so that played in the contemplation of them, and allured by their enticements, they by this meanes are often taken by hunters. In this opinion is Lewis Varstman, who denies that Unicorncs are wild or fierce; for he faith that he saw two, which were sent out of Aethiopia to the Sultan, who kept them shut up in Pannes, in Mecha, a citie of Arabia Felix, renowned by the Sepucher of Mabones. Thevet travelling thither, tells that he diligently enquired of the inhabitants, what their opinion was of such a beast, yet could he never hear any tidings thereof. Whence it is easie to difcern, that such beasts have neither bencne in our, nor in Varstmans times. The fo great variety of differing opinions, easily inducthe me to believe that this word, Unicorne, is not the proper name of any beast in the world, and that it is a thing only feigned by Painters, and Writers of natural things, to delight the readers and beholders. For as there is but one right way, but many by-waies and windings, so the scfcliof truth is but one, and maye easilie refell it selfe, by the repugnance and incongruity of opinions, if one should lay nothing. What therefore (will some lay) of what creatures are these hones, which we fee wholly different from others, if they be not of Unicornes? Thevet thinks them nothing else than Elephants bones turned and made into the fashion that we see them; for thus in the Eastern countries, some crafty merchants and cunning companions turne, hollow, and being fethtened, draw to what length they please the teeth of the old Roharde, which lives in the Red and Aethiopian Seas, and being so handled, they sell them for Unicorne hones. Verily that which is termed Unicorne horns being burnt, lends forth a smell like to Ivory. Now Cardan affirmes, that the teeth and bones of Elephants made soft by art, may bee drawne forth, and brought into what forme you please, like as Ox bones are. For what is there in the world which the thristing defire of gold will nor make men to adulterate and counterfeit? But it is time that we come to the third Scope. Grant there be Unicorncs, must it therefore follow that their horns must be of such efficacy against poisons? If we judge by events, and the experience of things, I can protest thus much, that I have ofte made tryall thereof, yet could I never find any good success in the use thereof against poisons, in such as I have had in cure. If the matter must bee tried by winces and authorities, a great part of the Physitians of better note have long since bid it adieu, and have detraced from the divine and admirable vertues for which it formerly was so much defired. And this they have done, moved thereto by many juft, but two especial reafons. The first is of Rondeletus, who in this cafe affirmes that horns are endued with no taue nor smell; and therefore have no effect in phystick, unles hee it bee to dry. Neither (faith he) am I ignorant that such as have them, much prediate their worth, so to make the greater benefit and gaine by them, as ow the shavings or scraings of Unicornes horn, which they fell for the weight in gold, as that which is singular

The Unicorn horns is not of fuchall against poisons.

What the ordinary Unicorn horns are.

The Unicorne horns is not ef
tual against poisons.

Life dependen
t. 

Unicorne and bones nor ef
tual untole to dry.

Varstman

opinion of

the shape of the Unicorn.
singular good against poisons and worms, which things I thinke Harts-horne and
Ivory do noe leffe effectually performe, which is the caufe why for the same disease,
and with the like faccette, I prescrive Ivory to such as are poor, and Unicorns horn
or the rich, as that they so much defire. This is the opinion of Bondeletius, who with¬
out any difference was wont for Unicorns horn to prescribe not onely Harts-horn
or Ivory, but also the bones of Horfes and Dogges, and the stones of Myrabalanes.
Another reason is, that whatsoever refists poisons is cordially, that is, fit to strengthens
the heart, which is chiefly assailed by poisons, but nothing is convenient to strength¬
then the heart, unless it bee by laudible blood or spirit, which two are onely familiar¬
to the heat, as being the work-houfe of the arteriuous blood and vitall spirits. For
all things are preferved by their like, as they are destroyed by their contraries; for
all things that generate, generate things like themselves. But Unicorns horn, as it
contains no smell, fo neither hath it any acry parts, but is wholly earthy and dry,
neither can it bee converted into blood by the digestive faculty, for as it is without
juice, fo is it without flesh. For as it cannot bee turned into Chrysalis, fo neither is it fit
to become Chrymus (that is) juice or blood. Therefore it is joyned to the heart by no
similitude nor familiarity. Furthermore, there is not a word in Hippocrates and Gal¬
ten concerning the Unicorns horn, who notwithstanding have it; so many places
commended Harts-horne. Therefore D. Chapaisme, the chiefe Phyfitian of King
Silver the ninth, often used to say, that he would very willingly take away that
custom of dipping a piece of Unicorns horn in the Kings cup, but that he knew that
opinion to be so deeply ingrafted in the minds of men, that he feared, that it would
fearce be impugned by reason. Besides (he said) if such a superstitious medicine do
no good, so certainly it doth no harme, unless it bee to their affects that buy it with
gold, or else by accident, because Princes, whilet they rely more than is fittig upon
the magnified virtues of this horne, neglget to arm themselves against poisons by
other more convenient meanes, fo that Death oft-times takes them at unawares.
When as upon a time I enquired of Lemes Darer the Kings Physitian and Profeffor
(by reason of the great opinion that all learned men juftly had of his learning and
judgement) what he thought of this horn. He anfwered, that he attributed no
stakes thereto: for the confirmation whereof he rendred the second reason I have for¬
metly given, but mote largely and elegantly; neither feared he to afirm it aloud, &
in plain words to his auditorie of learned men, comming from all parts to hear him.
But if at any time oocome by the fault of the times & place he prefcrib'd this horn,
that he did it for no other entent, than to help faintings or ownings that happen by
the abundance of earthy humors, floating in the orifice of the ventricle, which makes
men ill disposed, becaufe this mixed with other things endued with the like faculty,
hath power to drink up the waterish humidity by its earthy drince. But Rome will
reply, that neither the Lemanian, nor Armenian earth, have any juice in them, neither
any smell, nor acry spirit. It is granted, neither truely are such things truely and pro¬
cerly called cordiall, but onely by event and accident, for that by the excellent
affractive faculty they have, and flattering the passages of the vessels, they hinder the
poison from entering into the heart. This is my opinion of Unicorns horne, which
if any doe not approve of, hee shall doe mee a favour, if for the publike good, hee
shall freely oppofe his; but in the interim take this in good part which I have done.

The End of the One and Twentieh Booke.
OF THE

PLAGUE.

THE TWENTIE SECOND BOOKE.

CHAP. I.

The description of the Plague.

The Plague is a cruel and contagious disea Se, which every where, like a common disea Se, invading Man and Beast, kills plague is very many, being attended, and as it were associated with a continual Fever, Boches, Carbuncles, Spots, Nauscoufneffe, Vomiting, and other such maligne accidents. This disea Se is not fo pernicious or hurtfull, by any elementary quality, as from a certaine poynionous & venenate malignity, the force wherof exceeds the condition of common putrefaction. Yet I will not deny but that it is more hurtfull in certaine bodies, times and regions, as also many other diseases, of which Hippocrates makes mention. But from hence we can only collect, that the force and malignity of the plague, may be encreased, or diminished, according to the condition of the Elementary qualities concurring with it, but not the whole nature and offence thereof to depend thereon. This peffiferous poynion principally assaults the Vital spirit, the Store-house and originall whereof is the Heart, so that if the Vital Spirit prove stronger, it drives it far from the Heart: but if weaker, it being overcome and weakened by the hostile assault, flies backe into the forteffe of the Heart, by the like contagion infecting the heart, and so the whole Body, being fired into it by the passages of the Arteries. Hence it is, pestilent Fseavers are sometime simple and solitary, other-whiles associated with a troop of other affects, as Borches, Carbuncles, Blaines, and Spots, of one or more colours.

It is probable such affects have their originall from the expulsive Facult, whether strong or weake, provoked by the malignity of the raging matter: yet assuredly divers symptoms and changes arise, according to the constitution of the body of the Patient, and condition of the humor in which the virulency of the plague is chiefly inherent, and lastly, in the nature of the efficient cause.

I thought good, by this description, to express the nature of the plague, at this my first entrance into this matter, for we can scarce comprehend it in a proper definition. For although the force thereof be definite and certaine in nature, yet it is not altogether certaine and manifest in mens minds, because it never happens after one fort: so that in so great variety, it is very difficult to set down any thing generall and certaine.
Of the Divine causes of an extraordinary Plague.

It is a confirmed, constant, and received opinion in all Ages amongst Christians, that the plague and other diseases, which violently affail the life of man, are often sent by the just anger of God punishing our offences. The Prophet Amos hath long since taught it, saying, Shall there be affliction, shall there be evil in a City, and the Lord hath not done it? On which truly we ought daily to meditate, and that for two causes: The first is, that we always bear this in mind, that we enjoy health, live, move, and have our beings from God, and that it descends from that Father of Light; and for this cause we are always bound to give him great and exceeding thanks. The other is, that knowing the calamities, by sending whereof the Divine anger proceeds to revenge, we may at length repent, and leaving the way of wickedness, walk in the paths of godliness. For thus we shall learn to fear in God, our selves, the Heaven and Earth, the true knowledge of the causes of the plague, and by a certain Divine Philosophy teach, God to be the beginning and cause of the second causes, which cannot well without the first cause go about nor attempt, much less perform any thing. For from hence they borrow their force, order, and constancy of order; so that they serve as Instruments for God, who rules and governs us, and the whole World, to perform all his works, by that constant course of order, which he hath appointed unchangeable from the beginning. Wherefore all the cause of a plague is not to be attributed to the mere and inferiour causes or beginnings, as the Epicures and Lucianists commonly do, who attributing too much, yea all things to nature, have left nothing to God's providence. On the contrary, we ought to think, and believe in all our things, That even as God by his omnipotent Power hath created all things of nothing, so he by his eternal Wisdom preferves and governs the same, leads and enclines them as he pleaseth, yea verily at his pleasure changeth their order, and the whole course of Nature.

This cause of an extraordinary Plague, as we confess and acknowledge, fo here we will not prosecute it any further, but think it fit to leave it to Divines, because it exceeds the bounds of Nature, in which I will now contain my selfe. Wherefore let us come to the natural causes of the plague.

Of the Natural causes of the Plague, and chiefly of the Seminary of the Plague by the corruption of the Aire.

The general and natural causes of the Plague are absolutely two, that is, the infection of corrupt Aire, and a preparation and fitnesse of corrupt humours to take that insection; for it is noted before out of the doctrine of Galen, that our humours may bee corrupted, and degenerate into such an alienation which may equal the malignity of Poyson.

The Aire is corrupted, when the four seasons of the yeere have not their好看的, or degenerate from themselves, either by alteration, or by alienation; as if the constitution of the whole year bee moist and rainy by reason of g free and blacke Clouds, if the Winter bee gentle and warme without any Northerly wind, which is cold and dry, and by that means contrary to putrefaction; if the spring which should be temperate, shall be faulty in any excess of distemper, if the Autumn shall be ominous by Fires in the Aire, with stars shooting, and as it were falling down, or terrible comets, neuer seen without some disater; if the summer bee hot, cloudy and moist, and without winds, and the clouds fife from the South into
into the North. These and such like unnatural constitutions of the seaf ons of the yeare, were never better, or more excellently handled by any, than by Hippocrates in his books Epidemion. Therefore the Aire from hence draws the seeds of corruption and the Pestilence, which at the length, the like excefs of qualities being brought in, it tends into the humours of our bodies, chiefly such as are thinn and feares. Although the pestilence doth not alwaies neceffarily arise from hence, but sometimes some other kind of cruel and infectious diseafe.

But neither is the aire onely corrupted by thefe superior causes, but also by putrid and filthy flinking vapours Ipread abroad through the Aire encompassing us from the Bodies and Carcasses of things not buried, gapings and hollownefles of the earth, or finks and fuch like places being opened: for the sea often overflowing the land in fome places, & leaving in the mud or hollownefles of the earth (cau- fed by earthquakes) the huge bodies of monftrous Fishes, which it hides in its waters, hath given both the occasion and matter of a plague. For thus in our time, a Whale caft upon the Tuscan shore, prefently caufed a plague over all that country.

But as fifties infect and breed a plague in the aire, so the aire being corrupted ofte
caueth a pestilence in the fca amonf fishes, especially when they either swim on the top of the Water, or are infected by the pestilent vapours of the Earth lying under
them, & rising into the aire through the body of the water, the latter whereof Aristoteles, faith, happeneth but feldom. But it often changeth, that the plague raging in any cou- ntry, many fifties are caft upon all the coast, and may bee fene lying on greafheaps. But fulphureous vapours, or fuch as partake of any other maligne quality, fent forth from places under the ground, by gapings and gulfs opened by earthquakes, not only corrupt the aire, but also infect and taint the Seeds, Plants, and all the fruits which we eat, and fo transferre the pestilent corruption into us, and thofe beasts on which we feed, together with our nourifhment. The truth whereof Empedocles made manifeft, who by hurting up a great Gulph of the earth, openeth in a valley between two moun- tains, freed all Sicily from a plague caufed from thence.

If winds rising suddenly shall drive fuch filthy exhalations from thofe regions in which they were putiferous, into other places, they also will carry the Plague with them thither.

If it be thus, fome will fay, it should fene that wherefoever flinking and putrid putrefacled fca exhalations arife, as about standing Pooles, Sinks and Shambles, thero fhould thc Plague reigne, and straight fuffocate with its noyforac poynon the people which worke in fuch places: but experience findeth this fallte.

We doe anfwer, that the putrefadion of the plague is farre different, and of an- other kinde than this common, as that which partakes of a certayne secret malignity, and wholly contrary to our lives, and of which wee cannot eafily give a plaene and manifeft reafon. Yet that vulgar putrefa£tion wherefoever it be, doth eafe and quickly entertaine and welcome the pestiferous contagion, as often as, and whensoever it comes, as joyned to it by a certayne familiarity, and at length, it felfe degener- ating into a pestiferous malignity, certainly no otherwife than thofe difeafe which arife in the plague time, the putrid difeafe in our bodies, which at the firft wanted virulence and contagion, as Ulcers, putrid Fieavers, and other fuch difeafe, raised by the peculiar default of the humours, eafeely degenerate into pestilence, preferentially receiving the tainture of the plague, to which they had before a certain prepartation.

Wherefore in time of the plague, I would advise all Men to shunne fuch exceeding flinking places, as they would the plague it felre: that there may be no preparation in our bodies, or humours to catch that infection (without which, as Galen teacheth, the Agent hath no power over the Subject, for otherwife in a plague time, the fickle
ness would equally flaze upon all) fo that the impressio of the pestiferous quality may preferably follow that disposition.

But when we say the aire is pestilent, we do not understand that fencere, elementary, and simple as it is of its own nature, for fuch is not subject to putrefa£tion, but that which is polluted with ill vapours rising from the earth, standing waters, vaults, or sea, and degenerates, and is changed from its native purity & simplicity. But certain- ly amongst all the constitutions of the Aire, fit to receive a pestilential corruption, there

How the aire may be corrupted.
Concerning the Plague.

is none more fit than a hot, moist and still season: For the excelle of such qualities easily caufeth putrefcation. Wherefore the South wind reigning, which is hot and moist, and principally in places neare the Sea, there flesh cannot long be kept, but it presently is tainted and corrupted.

Further, wee muft know, that the pestilent malignity which rifieth from the carcases or bodies of men, is more easily communicated to men; that which rifieth from oxen, to oxen; and that which comes from sheepe, to sheepe, by a certaine sympathy and familiarity of Nature: no otherwise than the Plague which shall feaze upon some one in a Family, doth presently spread more quickly amongst the rest of that Family, by reafon of the similitude of temper, than amongst others of another Family, disagreeing in their whole temper. Therefore the Aire thus altered and estranged from its goodneffe of nature, necessarily drawn in by inspiration and transpiration, brings in the seeds of the Plague, and consequently the Plague it felfe, into bodies prepared and made ready to receive it.

CHAP. III.
Of the preparation of humors to putrefacion, and admisston of pestiferous impressions.

Aving shewed the caufes from which the Aire doth putrefie, become corrupt, and is made partner of a pestilent and poylonous constitution, wee muft now declare what things may caufe the humours to putrefie, and make them so apt to receive and retaine the pestillential Aire and venenat quality.

Humours putrefie either from fulnifie, which breeds obftruction, or by diftempe-rate excelle, or lafly, by admixture of corrupt matter & evil juice, which ill feeding doth specially caufe to abound in the body: For the Plague often followes the drinking of dead and miffle Wines, muddy and standing waters, which receive the finks and filh of a City; and fruits and pulfe eaten without discretion in fcarcity of other Corn, as Peafe, Beans, Lentils, Vetches, Acorns, the roots of Fern, & Gras made into Bread. For fuch meats obftruct, heap up ill humours in the body, & weaken the strength of the faculties, from whence proceeds a putrefacion of humours, and in that putrefacion a preparation and disposition to receive, conceive and bring forth the Seeds of the Plague: which the filthy feafts, malignant fores, rebellious ulcers, and putrid feavers, being all forerunners of greater putrefacion and corruption, doe testify. Vehement passions of the mind, as anger, sorrow, griefe, vexation and feare, helpe for ward this corruption of humours, all which hinder natures diligence and care of concoction: For as in the dog-days, the Lees of wine subfiding to the bottom, are by the strength and efficacy of heat drawn up to the top, and mixed with the whole substance of the wine, as it were by a certaine ebullition, or working: So melancholy humours, being the Dregs or Lees of the bloud, flurred up by the passions of the mind, defile or taint all the bloud with their feculent impurity.

We found that some years agoe by experience, at the battell of St. Dennis. For all wounds, by what weapon foever they were made, degenerated into great and filthy putrefactions & corruptions, with feavers of the like nature, & were commonly determined by death, what medicines, & how diligently foever they were applied, which caufed many to have a faffe infuficion that the weapons on both fides were poisoned. But there were manifest signes of corruption and putrefaction in the bloud let the fame day that any were hurt, and in the principall parts disected afterwards, that it was from no other caufe, than an evil constitution of the Aire, and the minds of the Souldiers perverted by hate, anger and feare.

CHAP.
Concerning the Plague.

CHAP. V.

What signifies in the Air and Earth prognosticate a Plague.

We may know a Plague to bee at hand and hang over us, if at any time the Aire, and feuons of the yeare swarve from their naturall constitution, after those ways I have mentioned before; if frequent and long continuing Meteoror fulphurous Thunders infect the Aire; if fruits, seeds and pulte be worm-eaten; if Birds forsake their nets, eggs or Young, without any manifest cause; if we perceive women commonly to abort, by continual breathing in the vaporous Aire, being corrupted and hurtful both to the Embriogon and original of life, and by which it being suffocated, is presently cast forth and expelled. Yet notwithstanding, those airy impressions doe not solely corrupt the Aire, but there may be also others raised by the Sunne from the filthy exhalations, and poysonous vapours of the earth and waters, or of dead carcasses, which by their unnatural mixture, easily corrupt the Aire, subject to alteration, as which is thin and moyst, from whence divers Epidemiall diseases, and such as everywhere feaze upon the common fort, according to the severall kinds of corruptions, such as that famous Catarhie with difficulty of breathing, which in the yeare 1510. went almost over the World, and raged over all the Cities and Townes of France, with great heavinesse of the head (whereupon the French named it Cacalia) with a strangling of the heart and lungs, and a Cough, a continuall Feaver, and sometimes raging.

This, although it feazed upon many more than it killed, yet because they commonly dyed who were either let bloud or purged, it shewed it selfe pestilent by that violent and peculiar and unheard of kinde of malignity.

Such also was the English Sweating-sicknesse, or Sweating-feaver, which unufually, with a great deal of terror invaded all the lower parts of Germany, and swamat the Low Countreys from the yeare 1525. unto the yeares 1530. and that chiefly in Autumn.

As soon as this pestilent diseale entred into any City, suddenly two or three hundred fell sick on one day, then it departing thence to some other place. The people stucken with it languishing, fell down in a fwoone, and lying in their beds, sweat continually, having a feaver, a frequent, quick, and unequall pulse; neither did they leave sweating till the disease left them, which was in one or two daies at the most; yet freed of it, they languished long after, they all had a beating, or palpitation of the heart, which held some for two or three yeeres, and others all their life after.

At the first beginning it killed many, before the force of it was knowne; but afterwards very few, when it was found out by practice and use, that those who furthered and continued their sweats, and strengthened themselves with Cordials, were all reftored. But at certaine times many other popular diseases sprung up, as purrid feavers, fluxes, fluxy fluxes, catarrhes, coughes, phrenzies, equinances, pleuritics, inflammations of the lungs, inflammations of the eyes, apoplexies, lithargies, small poxcs and meazels, febacs, carbancttes, and maligne pultes. Wherefore the plague is not alwayes, nor every where of one and the same kind, but of divers; which is the cause that divers names are imposed upon it, according to the variety of the effects it brings, and symptomes which accompany it, and kinds of putrefaction, and hidden qualities of the Aire.

They affirm, when the Plague is at hand, that Mustromes grow in greater abundance than any other kind the earth, and upon the surface thereof of many kinds of poysonous flowers creep in great numbers, as Spiders, Caterpillers, Butter-flies, Graffe hoppers, Beetles, Hornets, Wasps, Flies, Scorpion, Snailes, Locuzzs, Toads, Wormes, and such things as are the offspring of putrefaction. And also wild beasts tyred with the vaporous malignity of their Dennes and Caves in the earth, forfake them; and Moles, Toads, Vipers, Snakes, Lizards, Apes and Crocodiles are seen to flee away.
Concerning the Plague.

LIB. 22.

away, and remove their habitations in great troops. For these, as also some other creatures, have a manifest power by the gift of God, and the instinct of Nature, to prefigure changes of weather, as raines, showers, and faire weather, and feaons of the year, as the Spring, Summer, Autumnne, Winter, which they tell by their singing, chirping, crying, flying, playing, and beating their wings, and such like signes: so also they have a perception of a Plague at hand. And moreover, the carcasses of some of them which took the heed of themselves, suffocated by the pestiferous poison of the ill Air contained in the earth, may be seen everywhere found, not only in their dens, but also in the plains.

These vapours corrupted not by a simple putrefaction, but an occult malignity, may ascend to the clouds by the force of the Sun and winds and then be condensed into clouds, which by their falling produce dew hanging and abiding upon boughes and leaves of trees, herbs, corn, and fruits.

But on the contrary, that pestilence which proceeds from some maligne quality from above, by reason of a certain conjunction of the Stars, is more hurtful to men and birds, as those who are nearer to heaven.

CHAP. VI.

By using what cautions in Air and Diet, one may prevent the Plague.

Change of place for prevention of the Plague.

Two things of chief account for prevention.

Diet for prevention of the Plague.

Having declared the signes for showing a Pestilence: now wee must shew by what means we may shun the imminent danger thereof, and defend ourselves from it. No prevention seemed more certaine to the Ancients, than most speedily to remove into places farre distant from the infected place, and to be most slow in their returne againe. But those, who by reason of their businesse or employments, cannot change their habitations, must principally have care of two things: The first is, that they strengthen their bodies, and the principal parts thereof against the daily imminent invasions of the poison, or the pestiferous and venenate Air. The other, that they abate the force of it, that it may not imprint its virulence in the body; which may be done by correcting the exceede of the quality inclining towards it, by the opposition of its contrary. For if it be hotter than is meet, it must be tempered with cooling things; if too cold, with heating things: yet this will not suffice. For we ought besides, to amend & purge the corruptions of the venenate malignity diffuscd through it, by fumes and perfumes reftilling the poison thereof. The body will be strengthened and more powerfully refresh the infected Aire, if it want excrementious humours, which may be procured by purging and bleeding; and for the rest a convenient diet appointed, as shunning much variety of meats, and hot and moyst things, and all such which are easily corrupted in the stomacke, and cause obstructions, such as those things which be made by Confit makers; we must shun fatiey and drunkenesse, for both of them weaken the powers, which are preserved by the moderate use of meats of good juice.

Let moderate exercises in a cleare Air, and free from any venemous tainture, precede your meales. Let the belly have due evacuation either by Nature or Art.

Let the heart, the seat of life, and the rest of the bowels be strengthened with Cordials and Antidotcs applied and taken (as wee shall hereafter shew) in the forms of emplasters, ointments, waters, pills, powders, tablets, opiates, fumigations, and such like.
Concerning the Plague.

Make choice of a pure Aire & free from all pollution, & far remote from stinking places, for such is most fit to preserve life, to recreate and repair the spirits: whereas as on the contrary, a cloudy or mistie Aire, and such as is infected with groffe and stinking vapours, duls the spirits, dejects the appetite, makes the body faint and ill coloured, oppreft the heart and is the breeder of many diseases.

The Northern wind is healthfull, because it is cold and dry. But on the contrary, the Southerne wind, because it is hot and moist, weakens the body by floth or dulfe, and such as is infedfed with groffe and stinking vapours, dulfs the spirits, destroys the appetite, makes the body faint, and ill coloured. Oppreft the heart and is the breeder of many diseases. The Wethernew wind is also unwholomene, because it comes neere to the nature of the Southerne: wherefore the windowes must be shut up on that side of thehoufe on which they blow, but opened on the North and East side, unless it happen the Plague come from thence.

Kindle a cleare fire in all the lodging Chambers of the house, and perfume the whole house with Aromatick things, as Frankinfence, Myrrhe, Benzoin, Ladanum, Rosas, Iofes, Myrtle-leaves, Lavender, Rosemary, Sage, Savory, wilde Time, Marjorome, Broume, Pine-apples, pieces of Firre, Juniper berres, Cloves, Perfumes: and let your clothes be aired in the same.

There be some, who thinke it a great preservatif against the pestilent Aire, to keep a Goat in their houses, because the capacity of the house, filled with the strong ende which the Goat sends forth, prohibits the entrance of the venemous Aire; which same reason hath place also in sweet smells: and besides, it argues, that such as are hungry are apter to take the Plague, than those who have eaten moderately: for the body is not onely strengthened with meat, but all the passages thereof are filled by the vapours diffused from thence, by which otherwise the infected Aire would finde a more easy entrance to the heart.

Yet the common sort of People yield another reason for the Goat, which is, that one ill sent drives away another, as one wedge drives forth another, which calleth to my mind that which is recorded by Alexander Benediktus, that there was a Scythian Physician, which caufed a Plague, arising from the infection of the Aire, to cease, by caufing all the dogs, cats, & fuch like beafts which were in the City, to be killed, and caif their carcasses up & down the streets, fo by the comming of this new putride vapour as a stranger, the former pestiferous infection, as an old guest, was put out of its Lodging, & to the Plague ceased. For poysions have not onely an antipathy with their Antidotes, but also with some other poysions.

Whilest the Plague is hot, it is not good to stirre out of doore before the rising or setting of the Sunne: wherefore wee must have patience, until hee have cleansed the Aire with the comfortable light of his Beames, and dispersd all the foggy and nocturnall pollutions, which commonly hang in the Aire in dirty, and especially in low places and Vallies.

All publike and great meetings and assemblies must be shunned. If the Plague begin in Summer, and seme principally to rage, being helped forward by the summers heat, it is the best to performe a journey begun, or undertaken for performances of necessary affaircs, rather upon the night time, than on the day, because the infection takes force, strength and subtility of subftance, by which it may more eafily permeate and enter in, by the heat of the Sun, but by night mens bodies are more strong, and all things are more groffe and dense. But you muft observe a cleane contrary course if the malignity seems to borrow strength, and celerity from coldneffe. But you muft always echef the beames of the Moone, but especially at the full: For then our bodies are more languid and weake, and fuller of excrementious humours. Even as trees which for that caufe must bee cut down in the month of the Moone, that is, in the decrte thereof.

After a little gentle walking in your Chamber, you must presently use some meanes that the principal parts may be strengthened by infufciting the heat & spirits, & that the passages to them may be filled, that fo the way may bee shut up from the infection coming from without. Such as by the use of garlick have not their heads troubled, nor their inward parts inflamed, as Country people, and such as are used to it, so to stich there can bee no more certaine preservative and antidote against the pea-
Concerning the Plague.

What water to
become choice
in the Plague
chane.

For water, if the Plague proceed from the tainture of the Aire, we must wholly
shun and avoid rain-water, because it cannot but bee infected by the contagion of
the Aire. Wherefore the water of Springs, and of the deepest Wells are thought
best. But if the malignity proceed from the vapours contained in the earth, you must
make choice of Rain-water. Yet it is more safe to digest every sort of water by boi-
ling it, and to preferre that water before other, which is pure and clear to the sight,
and without either taint or smell, and which besides suddenly takes the extremest mu-
tation of heat and cold.

Chap. VII.

Of the Cordial Remedies by which we may preserve our bodies in feare of the
Plague, and cure those already infected therewith.

Such as cannot eat without much labour, exercise and hunger, and who
are no lovers of Break-fast, having evacuated their excrements, before
they goe from home must strengthen the heart with some Antidote a-
gainst the virulence of the infection. Amongst which Aqua Beriaca, or
Treacle-water, two ounces, with the like quantity of Sacke, is much
recommended being drunk, and rubbing the nostrils, mouth and ears with the same.

for the Treacle-water strengthens the heart, expels poyson, and is not only good
for a preservative, but also to cure the diseas itselfe: By for sweat it drives forth
the poyson contained within. It should be made in June, at which time all simple medi-
cines, by the virall heat of the Sun, are in their greatest efficacie.

The composition whereof is thus: Take the roots of Gentian, perfor"", Tormentill,
Diptam, or Fraxinella, Elecampane, of each one ounce; the leaves of Mullet, Carduus
Benedictus, Dives-bis, Burnet, Scabious, Sheepes Sorrel, of each halfe a handfull
of the tops of Rue a little quantity; Mirtle Berries one ounce; of red Rose leaves,
the flowers of Bugloffe, Borage, and St. John's wurt, of each one ounce: let them be
all cleansed, dried and macerated for the space of twenty four hours in one pound
of white wine or Malmeley, and of Rose-water or Sorrel water; then let them bee
put in a vessell of glaffe, and add thereto of Treacle and Mithridate, of each foure
ounces: then distil them in Balneo Maria, and let the distilled water bee received in
a glaffe Viall, and let there be added thereto of Saffron two drams, of bole Armenick,
Terra Sigiata, yellow Sanders, shavings of Ivory and Harts-horne, of each halfe an
ounce, then let the glasse bee well stopped, and let in the Sun for the space of eight or
ten dieies. Let the preferred quantity bee taken every morning so oft as shall be need-
full. It may bee given without hurt to sucking children, and to women great with
child. But that it may be the more pleasant, it must be strained through an Hippo-
cras bag, adding thereto some sugar and cinamon.

Some thinke themselves sufficiently defended with a root of Elecampane, Zedo-
arie, or Angelica, bowled in their mouth, or chewed between their teeth.

Others drink every morning one dram of the root of Gentian bruised, being ma-
cerated for the space of one night in two ounces of white-wine.

Others take Wormwood wine.

Others lap up in a ree egg one dram of Terra Sigiata, or of Hartf-horne, with a
little Saffion, and drink two ounces of wine after it.

There be some that doe infufe bole Armenick, the roots of Gentian, Tormentill,
Diptam, the Berries of Juniper, Cloves, Mace, Cinamon, Saffion, and such like, in a-
qua viva and strong white wine, and do distill it in Balneo Maria.

This Cordiall water that followeth is of great vertue. Take of the roots of the
long and round Arisatae, Tormentill, Diptam, the three firsts, of Zedoarie
two drams, Lignum Alce, yellow Saunders, of each one dram, of the leaves of Scor-
dium,
Concerning the Plague.

dium, St. Johns wurt, Sorrelle, Rues, Sage, of each half an ounce, of Bay and Juniper berries, of each three drams; Citron feeds one dram, Cloves, Mace, Nutmegs, of each two drams; of Mallick, Olds bum, bole Armenick, Terra Sigillata, thavings of Hart-horne and Ivory, of each one ounce, of Saffron on scruple, of the conserves of Roses, Buglofle flowers, water-lillies, and old Treacle, of each one ounce, of Campfire half a dram, of aqua vita half a pint, of white wine two pints and a half, make thereof a distillation in Balneo Maria. The use of this distilled water is even as Treacle water is.

The Elecuary following is very effectuall. Take of the beft Treacle three ounces, Juniper berries and Carduus feeds of each one dram and a half, of bole Armerick prepared half an ounce, of the powder of the Elecuary de Gemmis and Distamargarita frigidam, the powder of Hart-horne, and red Corall, of each one dram, mix them with the syrup of the rindes and juice of Pome-citrons as much as shall suffice, and make thereof a liquid Elecuary in the forme of an Opiate, let them take every morning the quantity of a Filberd, drinking after it two drams of the water of Scabious, Cherries, Carduus Benediclus, and of some such like cordiall things or of strong wine.

The following Opiate is also very profitable, which also may be made into Ta- Anopiatiblers. Take of the roots of Angelica, Gentian, Zedoarie, Elecampainc, of each two drams; of Cytron and Sorrell seeds, of each half a dramme; of the dryed rindes of Cytrons, Cinnamon, Bay and Juniper berries, and Saffron, of each one scruple; of conserves of Roses and Buglofle, of each one ounce; and fine hard Sugar as much as is sufficient; make thereof Tablets of the weight of half a dram, let him take one of them two hours before meste: or make thereof an Opiate with equal parts of conserves of Buglofle and Mel Anthosatum, and so adding all the rest dry and in powder. Or take of the roots of Valerian, Tormentill, Diplam, of the leaves of Rue, of each half an ounce; of Saffron, Mace, Nutmegs, of each half a dram; of bole Armenick prepared half an ounce; of conserves of Roses and syrup of Lenons as much as will bee sufficient to make thereof an Opiate liquid enough. Or take of the roots of both the Aristolochia's, of Gentian, Tormentill, Diplam, of each one dram and an halfe; of Ginger three drams; of the leaves of Rue, Sage, Mints and Pennyroyall, of each two drams; of Bay and Juniper berries, Cytron feeds, of each foure scruples; of Mace, Nutmegs, Cloves, Cinnamon, of each two drams; of Ligustrum aloes, and yellow Saunders, of each one dram; of Male Frankincence, olibanum, Ma- flieke, thavings of Hart-horne and Ivory, of each two scruples; of Saffron half a dram; of bole Armenick, Terra Sigillata, red Corall, Pearl, of each one dram; of conserves of Roses, Buglofle flowers, water-lillies and old Treacle, of each one ounce; of loafe sugar one pound and a quarter; a little before the end of the making it up, add two drams of Confedisse Alkermes, and of Camphire dissolved in Rosewater one scruple: make thereof an Opiate according to Art, the dose thereof is from halfe a dram to halfe a scruple.

Treacle and Mithridate faithfully compounded, excell all Cordiall medicines, adding for ev'ry halfe ounce of each of them, one ounce and a halfe of conserves of Roses, or of Buglofle, or of Violets, and three drams of bole Armenick prepared: Of thefe being mixed with flirring, and incorpored together, make a conerver: It must be taken in the morning the quantity of a Filberd: You must choose that Treacle that is not leffe than foure years old, nor above twelve: that which is some what new, is judged to be moft meet for cholericke persons, but that which is old for flegmatick and old men. For at the beginning the strength of the Opium that enters into the composition thereof, remains in its full vertue for a yeare: but afterwards the more years old it waxeth, the strength thereof is more abolisht, so that at length the whole composition becometh very hot.

The concoction of Alkermes is very effectuall both for a preservative against this diseafe, and also for the cure.

The quantity of a Filberd of Rubarbe, with one Clove chawed or rowled in the mouth, is suppos'd to repel the comming of the pestifent Aire: as also this composition following.
Concerning the Plague.

Take of preferred Citron and Orange pills, of each one dram; of conserve of Roses, and of the roots of Buglose, of each three drammes; of Citron feeds half an ounce, of Annise feeds and Fennell feeds, of each one dram; of Angelica roots four scruples; of Gar of Roses as much as sufficeth; Make a Confedion, and cover it with leaves of Gold, and take a little of it out of a spoon before you go abroad every morning.

Or take of Pine, Apple kernels, and Pistick nuts, infused for the space of six hours in the water of Scabious and Roses, of each two ounces; of Almonds blanched in the fore-named waters half a pound: of preserved Citron and Orange pills, of each one dram and a halfe; of Angelica roots four scruples: make them according to art, unto the forme of March-pane, or of any other such like confection: and hold a little piece thereof often in your mouth.

The Tablets following are most effectual in such a case. Take of the roots of Diptara, Tonnentill, Valerian, Elecampane, Eringocs, of each half a dram; of bote Armenick, Terr4 Sigillata, of each one scruple; of Camphire, Cinnamon, Sorrell feeds, and Zedoaric, of each one scruple; of the of the Eleduaric AntmFrigtdum, two scruples; of conserve of Roses, Buglose, preferred Citron pills, Mithridate, Trecate, of each one dram; of fine Sugar dissolved in Scabious and Carduus waters, as much as shall suffice: Make thereof Tablets of the weight of a dram or half a dram: take them in the morning before you eat.

Other pills. Those pills that follow are also much approved. Take of Aloes one ounce; of Myrthe halfe an ounce, of Saffron one dram, of Agarick in Trochilces, two drams, of Rubarbe in powder one dram, of Cinnamon two scruples, of Mafticke one dram and a halfe, of Citron feeds twelve grains; Powder therof all as is requisite; and make thereof a maffe with the syruppe of Maiden-hair: Let it be used as afore-faid. If the maffe begin to wax hard, the pills that must presently be taken, must be mollified with the syruppe of Lemons.

Other pills. Take of wathed Aloes two ounces, of Saffron one dram, of Myrthe half an ounce, of Ammoniacum dissolved in white wine, one ounce, of hony of Roses, Zedoariz, red Saunders, of each one dram, of bole Armenick prepared two drams, of red Coral half an ounce, of Camphire halfe a scruple: make thereof pills according to Art. But those that are subject to the haemorrhoids ought not at all, or very seldom to take those kindes of pills that doe receive much Aloes.

They say that King Mithridates affirmed by his own writing, that whosoever took the quantity of an halfe Nut of the preservative following, and drank a little wine after it, should be free from poyson that day. Take two Wall-nuts, those that be very dry, two figs, twenty leaves of Rue, and three grains of salt: beat them, and incorporate them together, and let them be used as is afore-faid. This remedy is also said to be profitable for those that are bitten or stung by some venomous beast, and for this onely, because it hath Rue, in the composition thereof. But you must forbide women that are with child the use of this medicine, for Rue is hot and dry in the third degree, and therefore it is said to purge the womb, and pro-
Of local medicines to be applied outwardly.

Of what sorts the medicines are to be applied outwardly, or carried about with you, may be seen in the following table. Here are enumerated such as have a proper and excellent virtue against the pestilence, and are not to be neglected to be applied outwardly, or carried in the hand. And such are all aromaticall, astringent, or spirituous things, which therefore are ended with virtue to repel the venemous and pestiferous air from coming and entering into the body, and to strengthen the heart and the braine. Of this kind are Rue, Balm, Rosemary, Scordium, Sage, Worme-wood, Cloves, Nutmegs, Saffron, the roots of Angelica, and Lovage, and such like, which must be macerated one night in sharpe Vinegar and Aqua viva, and then dried in a knot as big as an egg: or rather let it be carried in a sponge, made wet or soaked in the said infusion. For there is nothing that doth sooner and better hold the spirituous virtue and strength of aromaticke things, than a sponge. Wherefore it is of principal use either to keep or hold sweet things to the nose, or to apply Epithemes and Fomentations to the heart.

Those sweet things ought to be hot or cold, as the season of the yeere, and kind of the pestilence. As for example, in the Summer you ought to infuse and macerate Cinamon and Cloves beaten together, with a little Saffron in equall parts, of Vinegar of Roses, and Rofe water, into which you must dippe a sponge, which rowled in a faire linnen cloath, you may carry in your hand, and often to thy nose.

Take of Wormewood halfe a handfull, ten Cloves, of the roots of Gentian and Angelica, of each two drammes, of Vinegar and Rofe water, of each two ounces, of Treacle and Mithridate, of each one dramme, beat and mixe them all well together, and let a sponge be dipped therein, and used as above-said. They may also bee enclosed in boxes made of sweet wood, as of Juniper, Cedar, or Cypresse, and so carried for the same purpose.

But there is nothing more easie to be carried than Pomanders: the form of which is thus: Take of yellow Saundres, Mace, Citron pills, Rose and Mirtle leaves, of each two drammes, of Benzoin, Ladanum, Storax, of each halfe a dramme of Cinamon, and Saffron, of each two Scruples, of Campfhire and Amber Greece, of each one feruple, of Muske, three grains. Make thereof a Pomander, with Rose water, with the infusion of Tragacanth. Or take red Rose leaves, the flowers of Water-lilies, and Violets, of each one ounce, of the three Saundres, Coriander fedes, Citron pills, of each half an ounce, of Campfhire, one dramme, let them all bee made into pouder, and with Water of Roses and Tragacanth make a pomander.

In the winter it is to be made thus: take of Storax, Benzoin, of each one dram and a halfe of Musk, halfe a Scruple, of Cloves, Lavander, and Cypers, of each two drammes, of the root of Orris, Flower-de-luce, and Calamus aromaticus, of each two drammes, and a halfe, of Amber Greece, three drammes, of gum Tragacanth dissolved in Rose water & Aqua viva, as much as shall suffice: make thereof a Pomander.

And for the same purpose you may also use to carry about with you sweet powders, made of Amber Greece, Storax, Orris, Nutmegs, Cinamon, Mace, Cloves, Saffron, Benzoin, Muske, Campfhire, Roses, Violets, junceus odoratus, Marjoram, & such like, of which being mixed together, Powders may be compounded & made.

Take of the roots of Orristwo drammes, of Cypers, Calamus Aromaticus, red Roses, of each halfe an ounce, of Cloves halfe a dramme, of Storax one dramme, of Muske eight grains: mixe them, and make a pouder for a bagge: or take the roots of Orris two drammes, red Rose leaves, white Saundres, Storax, of each one ounce, of Cypers one dram, of Calamus Aromaticus, one ounce, of Marjoram, halfe an ounce of Cloves, three drammes, of Lavander, halfe a dramme, of Coriander seeds two drammes, of good Muske, halfe a scruple, of Ladanum and Benzoin, of each a dram, of Nutmegs and Cinamon, of each two drammes: Make thereof a fine pouder, and few it in a bag.
Concerning the Plague.

Chap. IX.

It will be very convenient also to apply to the region of the heart, a bagge filled with yellow Saunders, Mace, Cloves, Cinnamon, Saffron, and Treacle, taken together, and incorporated, and sprinkled over with strong vinegar and Rose water in Summer, and with strong wine and Muskedine in the Winter.

These sweet Aromaticke things that are so full of spirits, smelling sweetly and strongly, have admirable virtues to strengthen the principal parts of the body, and to stirre up the expansive faculty to expell the poiyon.

Contrariwise, those that are stinking and unavory, procure a desire to vomit, and dissolution of the powers, by which it is manifest how foolish and absurd their persuasion is, that counselle such as are in a pestilential constitution of the aire, to receive and take in the stinking and unavory vapours of sinks and privies, and that especially in the morning.

But it will not suffice to carry those preservatives alone, without the use of any other thing, but it will be also very profitable to wash all the whole body in Vinegar of the decocation of Juniper & Bay berries, the roots of Gentian, Marigolds, St. Johns Wort, and such like, with Treacle or Mithridate also dissolved in it. For vinegar is an enemy to all poisons in general, whether they be hot or cold: for it refiseth & hindeth putrefaction, because it is cold & dry: therefore in this, inanimate bodies, as flesh, Herbes, fruits, and many other such like things, may be kept a long time without putrefaction. Neither is it to be feared, that it should obstruct the pores, by reason of its coldness, if the body be bathed in it: for it is of subtle parts, and the spices boiled in it, have virtue to open.

Who soever accounteth it hurtful to wash his whole body therewith, let him wash only his arme-holes, the region of his heart, his temples, groines, parts of generation, as having great and marvellous sympathy with the principal and noble parts.

If any mislike bathing, let him anoint himself with the following unguent. Take a half of Roses, four ounces oyle of Spike, two ounces of the powder of Cinnamon and Cloves, of each one ounce and a half; of Benzoin, half an ounce* of Muske, six grains of Treacle, half a dramme; of Venice Turpentine, one dramme and a halfe; of Waxe, as much as shall suffice: make thereof a soft unguent.

You may also drop a few drops of oil of Mastick, of Sage, or of Cloves, and such like, into the ears, with a little Civet or Muske.

Chap. IX.

Of other things to be observed for prevention in case of the Plague.

EMBRY is chiefly to be eschewed, for by it the powers are debilitated, the spirits dissipated, and the breathing places of the body diminished, and lastly, all the strength of nature weakened. A sedentary life is to be shunned, as also excessive in diet, for hence proceeds obstruction, the corruption of the juices, and preparation of the body to putrefaction and the pestilence.

Women must be very carefull that they have their courses duly, for slopping besides the custom, they easily acquire corruption, and draw by contagion the rest of the humors into their society. Such as have fitfulous, or otherwise old ulcers, must not heal them up in a pestilential season, for it is then more convenient rather to make new ones, and thefe in convenient and declining places; that as by these channels, the fiske of the humors of the body may be emptied.

The Hemorrhoids, bleedings, & other the like accustomed evacuations, must not be stopp'd, unless they exceed measure. Moreover, they must at such times take heed that they touch or handle not any of these things wherein the seedes or fluid of the pestilence may lie hid, such as are, hempe, flaxe, quilts and coverings wherein such as have had the plague, have laid; skins and all leathern things, hangings and cloaths.

You must dwell farre from church-yards, especially from those wherein the corps of such as have died of the plague, are not buried deep in the ground, as in the church of
of the Innocents in Paris, in which place by the same reason in dry times happens that the buried bodies are plucked up, eaten and torn by dogs. Also let them dwell free from places of execution, thimbles of fish and filth, from 판.Frame houses, driers, fallow-chandlers, cloth-dressers, farriers, skinners, and from the places wherein metals are cast or wrought. The filth and dung, especially of Swine, Privies, standing and muddy waters, and all the things of the like evil smell, must be far removed from your habitation; the belly must not be emptied into those places, into which the excrements of such as have the plague are cast. The company of such as usually visit the sick of the plague, must be excluded, as of Physicians, Apothecaries, Surgeons, Nuns, Keepers, Grave-makers and Bearers. For though they have not the plague, yet coming forth of a pestilent place, they may carry with them being hid in their garments, the seeds thereof. You may gather this by such as have for a little while stayed in a perfumer's shoppe, for the perfume diffused in the air, before the wind upon the garments of such persons, so that gone from thence, such as meet them, will judge them to carry perfumes with them. They shall also see the long watchings, found sleeping, all passions of the mind, especially anger, hunger, thirst, journeying in the sun, for that hath oft-times occasioned a diastem to happen, which hath not done beene scene to turne into a pestilent one, for by dilating the pores of the skinne, they have given entrance to the pestilent aire, which by that means hath easilie taken hold of the humour disposed to putrefaction.

\[CHAP. X.\]

Agistrates ought to have a speciall care that no filth be heaped up, either in private or publike places; let all things bee kept neat in every house, and let all the streets be kept cleane, the dung and filth bee carried forth of the city, as also the dead carasses of killed dogs and cats, for because they oft-times likey and devour the excrements of such as have the Sicknesse, therefore they may by their familiar entry into sound houses, there propagate the plague. Wherefore they must either be driven forth of the city, or killed, and to be carried forth and buried deep in the ground. Wells, springs, and rivers themselves, must bee freed and cleansed from all impurity. Care must bee had that masty corn, tainted flesh, nor flinking fish be not set to sale. Publike bathe and hot-houses must bee prohibited, for that in these, mens bodies are weakened, and made more yeelding and pervious to the pestiferous aire. They shall commit the care of such as have the plague, to learned, skillfull and honest Physicians, Apothecaries, and Surgeons.

Such as are knowne to have the plague, shall be separated from such as are free thence, and bee sent to such fit places as shall bee provided for them, for this is better and more humane done, than to shut up every man in his own house. They shall provide and forefee that the household-stuffe of such as have the plague bee not set to sale. They shall set figures and noted markes upon the houses seazed upon by this disease, lest they should unawarees run into danger. Wherefore to the same purpose they shall procure that the Surgeons & others that visitte the sick of the plague may be known by some conspicuous marke, that such as passe by them may be admonished of the danger; they shall also take care that the bodies of the dead be buried as speedily as may be. For they sooner & more grievously purifie in a short time than the bodies of others of what death forever they die. Wherefore, neither birds nor ravenous beasts dare once touch their bodies, though unburied, for by visiting them they should quickly come to their deaths. The keepers of the gates of the city shall be admonished, that they take special care that such as are infected, or come from a visited place, do not enter into the city, for from one, the evil may come to spread it felde farther, for one srike may let a whole city on fire, and one daliie a whole flock in a whole flock. And because there is nothing which may more perfectly purge
concerning the plague.

the air, and cleanse it from all manner of noy sot off and infection, than fire, they shall command that there be kindled, and perpetually kept burning fires, made with poisonous and strong burning things, as Juniper, Turpentine, Broome, and the like.

In stead hereof Lestius tells that the founders of the Garrison of Tournay used in a Plague time to discharge their Cannons laden only with Powder, turning their mouths upon the city, and that morning and evening, that by the vehemency of the moved air, the pestiferous fogs might be chased away, and by the heat of the burned powder, the venenate and noy some quality of the air might be amended. Lastly, judge it fit to admonish Magistrates that they have their eies and minds attentive upon a murderous and impious kind of bearers and nurse-keepers, which allure with a desire of gain (which whilest the plague reigns, they get abundantly) against the walls, doores, thresholds, knockers of gates and lockes with the filth and ointments taken from such as have the plague, that the plague within a while after feazing up upon these also, the masters of them flying away, and the family dispersed, they may there reign alone; and freely and without punishment carry thence what they please, oft-times strangle such as lie ready to dye, left recovering, they might be their accusers. This remember happened at Lyons, Anno Dom. 1565.

chap. xi.
what caution must be used in chusing Physicians, Apothecaries and Surgeons, who may have care of such as are taken with the plague.

it is the part of Magistrates in the so great necessity of the afflicted commonwealth, to appoint learned, skilfull, and honest Physicians, Surgeons, and Apothecaries, and such as have more regard to the law of God than to gain, to have the care & cure of such as are visited. But principally let them not take Surgeons and Apothecaries called by proclamation with sound of trumpet, that if they will take this charge, they shall become free without examination or reward. But let them rather be allured by gifts and honest rewards, not only then when necessity urgeth, but also after the plague is over. For such servient Surgeons and Apothecaries as are called by proclamation, to to gaine freedome, are most commonly unskilful and unexperienced Dunces, who, conscious of their owne ignorance, and fearing to undergo the examination of the Matters of their Companys, refuse no hazzard, however dangerous, with desire to obtaine their freedome.

It is farre worse and more dangerous to fall into the hands of such, than into the hands of thieves and murderers, for thefe, by providence or strength, wee may chance to escape; but wee fecke for and embrace the other, and having found them, lay our throats bare unto them, to by their unskilfulness to be butchered. Certainly by the fault of the times, and the neglect of Magistrates, it is almoft come to this paffe, that if any honest and learned Physicians and Surgeons shall undertake this cure, they are commonly forced thereto by the Magistrates for feare of banishment or fining. Therefore because they doe it against their wills, they shew themselves lefle vigilant, more full and painefull about the fiece. They come unwillingly and compelled hereto, because by the memory of the forepast time, they sufficiently know, how forside and badly Magistrates, when the plague hath beene overpast, have bin in paying the promised reward to men of their condition, who have flouly run into danger, for thence it happens that during the rest of their lives they may sit idle at home, far that they are infamous and feared by the people only for this, that a while agoe they visited such as had the plague. Therefore I would have Magistrates prudent, faithful, and free in choosing honest, learned and skilfull men, who may undergoe this so difficult and dangerous a charge.

chap.
Concerning the Plague.

Chapter XII.

How such as undertake the cure of the Plague ought to arm themselves.

First they must think and hold for certaine, that they are not called to this office by men, but by God, so directing the counsels and actions of men as he thinketh fit. Therefore they shall confidently enter into the cure thereof, for that our lot, life and death are in the hands of the Lord: but notwithstanding they ought not to neglect remedies, which are given to men for prevention, lest by neglecting the gifts of God, they may seem to neglect him also that is the giver of so many good and excellent benefits. Therefore first let them by purging and bleeding evacuate the humours subject to putrefaction, and to conceive the seeds of the pestilence. Let them make two fontanellas by application of Caustics to bee as rivelate to evacuate the excrementitious humours which are daily by little and little heaped up in us; let one of them bee in the right arm a little below the muscle Epimelic, the other the space of three fingers under the knee on the inside of the left legge. This is found by experience a very certain means of prevention. Let them wash their whole bodies with the following lotion. R. aqua reflexa, rostati, aus fummonium, vini albi, aut malvacei, an. 16. vi. rad. emule camp, angelica, gentian, brilot, tepeder, ar, am. 3 ii. baccar. juniperi, & hedera, an. 3 ii. salvia, rosmarin. absinth. rute, an. m. 3i. corticis citri, 36, iherace & mitridat. an. 3i. conquisitanae conquisit. bulant. in tepes ignis, & ferventur ad usum ante commemoratum. The Epithemes, unguents, & bags formerly described shall be applied to the region of the heart. I have read it noted by John Baptist Theodosius, that amongst other things, Arsenick may be proper, Epistulae, fitably applied to the region of the heart, that so it may by little and little accustome it selfe to poisons, that afterwards it may bee leafe harmed by their incursion, first making their assault upon it. 

Let their garments be made of Chameleon, Dutch sarge, Satin, Taffary, or the like. What so weare.

Or else if they cannot of these, let them be of some other handseme stufle, but not of cloth, frieze or the like; that may take the venenate Aire, and carry it with them to the infection of the found. They shall oft-times change their clothes, flirts and other linnen, and Perfume them with aromaticke things: let them warily approach to the sick, more warily speake unto him, with their faces looking away from him, rather than towards him, so that they may not receive the breath of his mouth, neither the vapour nor smell of any of his excrements.

When as I upon a time being called to visit one that lay sicke of the plague, came a horseman too neare and heedlesly to him, and presently sadding off the closa, laid him bare, that so I might the better view a Bubo that hee had in his right groine, and two Carbuncles that were on his belly, then presently a thick, filthy and putride vapour arisintg from the broken absceffe of the Carbuncle, as out of a raked puddle, ascended by my nostrils to my braine, whereupon I fainted and fell down senseless upon the ground; raisid up a little after, all things seemed to me to run round; and I was ready to fall againe, but that I stayed my selfe by taking hold of the bed poste. But one thing comforted me, that there appeared no signes that my heart was affected, either by paine or panting, or the strong and contumacious failing of my powers. An argument that the animall spirits were only dissipate by a venenate vapour, and that the substance of the heart was no way wronged, was a sneezing which took me so violently, that I sneezed ten times, and then fell a bleeding at the nofe; which excretion, I believe freed me from all the impression of the malignity. Let others warned by this mine example, learne to be wiser and more wary in this case, lest they come to a worse mishap than befall me.

Azaa
Concerning the Plague.

Chap. X111.

Of the Signs of such as are infected with the Plague.

E E must not stay too long before we pronounce one to have the Plague, until there be paine and a tumour under his arme holes, or in his groine, or spots (vulgarily called Tokens) appeare over all the body, or carbuncles arise: for many die through the venenate malignity, before these signs appeare. Wherefore the chiefeft and truest signs of this diſafe are to be taken from the heart, being the mansion of life, which chiefly and first of all is wont to be affailed by the force of the poion. Therefore they that are infected with the Pestilence, are vexed with often twounings and fainting, their pulse is feebler and flower than others, but sometimes more frequent, but that is specially in the night season; they feel prickings over all their body, as if it were the prickings of needles; but their noſtrils doe itch especially by occasion of the maligne vapours rising upwards from the lower and inner, into the upper parts, their breath burneth, their heart beateth with paine under the left dung; difficulty of taking breath, Priſiſcke, Coughe, paine of the heart, and such an elation or puffing up of the Hypochondria or fides of the Belly, diffended with the abundance of vapours railed by the force of the feaverilh heat, that the Patient will in a manner teemie to have the Timpany. They are molefted with a defire to vomit, and oftentimes with much and painfull vomiting, wherein green and black matter is seen, & alwaies of divers colours, answearing in proportion to the excrements of the lower parts, the stomack being drawn into a conſent with the heart, by reaſon of the vicinuity and communion of the vefſels, oftentimes bloud alone, & that pure, is excluſed & caſt up in vomiting; and it is not only caſt up by vomiting out of the stomack, but alſo very offen out of the noſtrills, fundament, and in women out of the wombe; the inward parts are often burned, and the outward parts are fliſſe with cold, the whole face of the Patient being drawn violently inward, after the manner of a Cupping glaffe, by the strong burning of the inner parts; then the eye-lids ware blew, as it were through fome contufion, all the whole face hath a horrid appearance, and as it were the colour of lead, the eies are burning red, & as it were, fwole or puffed up with Blood, or any other humour, flied teares; and to conclude, the whole habite of the body is somewhat changed and turned yellow.

Many have a burning feaver, which doth shew it felfe by the Patients ulcerated jæves, unquechable thirt, dryneſses and blacknes of the tongue, and it caueth fuch a phrenzie by inflaming the braine, that the patients running naked out of their beds, feke to throw themselves out of windowes into the pits and rivers that are at hand. In fome the joynts of the body are fo weakened, that they cannot goe nor fland, from the beginning they are as it were buried in a long fwoone and deepfe kleep, by reaſon that the feaver tendeth up to the braine the groffe vapours from the crude and cold humours, as it were from greene Wood newly kindled to make a fire.

Such fleeping doth hold him especially while the matter of the fore or Carbuncle is drawne together, and beginneth to come to fuppuration. Oftentimes when they are awoke out of fleep, there doe spots and marks appeare difperfed over the skin, with a finking fweat. But if these vapours be tharpe that are flirred up unto the head, in leaft of fleep they cauē great kleeping, and alwaies there is much diversitie of accidents in the urine of those that are infected with the Plague, by reaſon of the divers temperature and condition of bodies: neither is the urine at all times, and in all men of the fame confidence and colour: For fometimes they are like unto the urine of thoſe that are found and in health, that is to fay, laudable in colour and subſtance, because that when the heart is affected by the venenous Aire, that entret in unto it, the spirits are more greatly grieved and molefted than the humours: but thoſe, the spirits, are infected and corrupted when theye do begin to corrump.

But Urines onely shew the dispositions of the humours or parts in which they are made, collected together, and through which they passe.
Concerning the Plague.

This reason feemeth truer to mean than theirs which say, that nature terrifyed with the malignity of the poiyon avoyds contention, and doth not refit or labour to dif-
gelt the matter that causeth the difeafe.

Many have their appetites fo overthrown, that they can abstinence from meat for the space of three daies together.

And to conclude, the variety of accidents is almost infinite, which appear & spring up in this kinde of diseafe, by reason of the diversitie of the poiyon, and condition of the bodies and grieved parts; but they doe not all appeare in each man, but som in one, and some in another.

CHAP. XIII.

What fignes in the Plague are mortall.

This is a most deadly figne in the Pestilence, to have a continuall and burn-
ing Feaver; to have the tongue dry, rough, and black, to breathe with difficulty, and to draw in a great quantity of breath, but breathe out lit-
tle; to take idely; to have phrenzie and madneffe together, with un-
quenchable thirt and great watching; to have Covulsions, the Hicke, heart-beating, and to fwoone very often and vehemently; further, rolling and turning in the bed, with a loathing of meats, and daily vomits of a greene, blacke and bloody colour; and the face pale, blacke, of a horrid and cruel aspect, bedewed with a cold sweat, are very mortall fignes.

There are fome which at the very beginning have ulcerous and painefull weari-
nelle, pricking under the skin, with great torment of paine; the eyes looke cruelly and staringly, the voyce waxeth hoarle, the tongue rough and dry, and the un-
derstanding decaying, the Patient uttereth and talketh of frivolous things. Truly these are very dangerously sick, no otherwife than thofe whose urine is pale, black, and troubled like unto the urine of carriage beasts, or Lyce, with divers coloured clouds or contents, as blew, greene, black, xary and oylie, as alfo resembling in fhow a Spiders Web, with a round body swimming on the top.

If the tht of the carbuncle be dry and blacke, as it were feared with a hot iron, if the ftilt about it be blacke and blew, if the matter doe flow back, and turne in, if they have a lashe with greatly flinking, liquid, thin, clammy, blacke, greene or blowly or-
dure; if they avoyd wormes by reafon of the great corruption of the humours, and yef for all this the patient is never the better; if the eies waxe often dim, if the noftils bee contradccted or drawne together, if they have a grievous crampe, the mouth bee drawne aside, the muscles of the face being drawn or contraccted equally or unequa-
ly, if the nailes be blacke; if they be often troubled with the Hicket, or have a Cov-
ulsion and resolution over all the body, then you may certainly prognofticate that death is at hand, and you may ufe Cordiall medicines onely, but it is too late to purge or let bloud.

CHAP. XV.

Signes of the Plague comming by contagion of the Aire without
any fault of the humours.

You shall underftand that the Pestilence proceeds from the corruption of the aire, if it be very contagious, and difperfe it felf into fundry places in a moment. If it kill quickly and many, so that whileft fundry per-
sons goe about their usual businesse, walke in the places of common re-
fort and through the streets, they suddenly fall downe and dye, no figne of the difeafe or harme appearing, nor any paine opprefting them; for the maligni-
ty of the corrupte Aire is quick and very speedy in infecting our spirits, overthrowing

Aaaa 3 the
Concerning the Plague.

Sears of the Plague drawn into the body by the fault and purgation of humours.

Wee must deliver the signes of each corrupt humour which reignes in us, that it may be reduced to soundnesse and perfection of nature by the opposition of its contrary, or else be evacuated by physic. Therefore if the body be more yellow than usuall, it is a signe of choler offending in quantity and quality. If more black, then of melancholy; if more pale, then of phlegme; if more red, with the veins swolne up and full, then of bloud. Also the colour of the rising blaines, tumours and spots, expresse the colour of the predominant humour, as also the excrements cast forth by vomit, stool and otherwise, the heavyneffe and cheerfulneffe of the affected body, the manner of the present feaver, the time of the year, age, region, diet. Such things as have a cutting, penetrating, attenuating, and cleansing faculty, take away obftrucaion. By means of obftruction feavers oft-times accompany the Plague, and thefe not onely continual, but also intermitting, like tertians or quartains. Therefore that Plague that is fixed in the infection or corruption of a cholericke humour, shewes it selfe by the forementioned signes of predominating choler, to wit, the heathe of the skin, blaines and excrements, as also in the quickneffe of killing, and vehement of the symptoms, bitterness of the mouth, a paineful and continual endeavoure of going to stool, by reason of the acrimony of choler stimulating and raking the guts in the passage forth. That which resides in the corrupt substance of groffle humours, as of bloud, sheweth it selfe by many and plentiful sweats, by a lowe burning, by which are avoided many and various humours; and oftentimes also bloody matter that proceeds from corrupt phlegme, it invades with more found sleep, & a canelike wearinesse of all the members, when they are awakened out of their sleep, they are not seldom troubled with a trembling over all their joints, the entrance and way of the spirits into the members being obstrued by the grofseneffe of the humours. That which is feared in the corruption of a melancholy humour, is accompanied with heaviness and paine of the head, much penveineffe, a deep and small pulse. But the most certain signe of the Plague refiding in the corruption of the humours, is to be taken from the urine. For the signes of the vitiated humours cannot but shew themselves in the urines: therefore troubled urines, and such as are like those of carriage beasts, as also blacke and greene, give certaine notice thereof. But some are much troubled with thirst, others not at all, because choler or Phlegme sometimes onely putrefie in the stomacie or orifice of the ventricle, sometimes besides they will weaken the government of the natural faculties of the part, as of the appetite. But if the feaver happen by the default and infection both of the Aire and Humours, then will there bee a great confusion of the forementioned signes and symptoms.
Concerning the Plague.

Of the Prognostication that is to be instituted in the Plague.

Of the Plague, which may well fore-tell the future motions and events of diseases, when you thoroughly know the nature of the disease, and accidents thereof, and the condition, function, and excellency of the body and griev'd parts: Although that this may be spoken in general, there is no certain prediction in pittifull diseases, either to health or death, for they have very unconstant motions, sometimes swift and quick, sometimes slow, and sometimes choking or suffocating in a moment, while one breathes in the venemous Air, as he is going about any of his necessary affairs, having puttees rising in the skin with sharp pain, and as though the whole body were pricked all over with needles, or the stings of Bees. Which I have seen with mine eyes in the Plague that was at Lyons when Charles the French King lay there. It many times commeth to pass that the accidents that were very vehement and raging a little before, are suddenly allayed, and the patients doe think themselves better, or almost perfectly found. Which happened to Mary one of the Queen Mother her Mayds, in that notable pestilent constitution of the Air, that year, when Charles the French King lay at the Castle of Rosilhion: For when she was infected, a great tumour or Bubo arose in her groin, and suddenly it went in againe, so that the third day of her sicknesse, she said she was without any grief; or disease at all, but that she was somewhat troubled with a difficulty of making water; and I think it was because the bladder was enflamed by the reflex of the matter; but she was found in mind and body, and walked up and downe the Chamber on the same day that she died. The strangeness of which thing made the King so fearfull, that he hasted to depart thence.

Although this disease doth spare no man, of what age, temperature, complexion, why young, dise and condition soever, yet it affaulgeth young men that are cholerick and fancious, more often than old men that are cold and dry, in whom the moisture that is the nourisher of putrefaction by reason of their age is consumed, and the wayes, passages and pores of the skin, whereby the venemous Air should enter and pierce in, are more strait and narrow. And moreover, because old men doe always stay at home, but young men for their necessary businesse, and also for their delight and pleasure, are always abroad in the day time, in the Air, wherefore the pollution of the pestilence commeth more often.

That pestilence that comes by the corruption of the humours, is no so contagious as that which commeth by the default of the Air. But those that are phlegmaticke and melancholy, are most commonly griev'd with that kind of pestilence, because in them the humours are more clammy and groffe, and their bodies more cold and lese perspirable, for which causes the humours fooneer and more speedily putreface.

Men that are of an ill juice are also most apt to this kind of pestilence, for in the naughty quality of the juice there is a great preparation of the humours unto putrefaction. You may know it by this, that when the pestilence rageth, there are no other diseases among the common people, which have their original of any ill juice, but they all degenerate into the Plague. Therefore when they begin to appeare and wander up and downe, it is a token that the pestilence will shortly cease, or is almost at an end.

But here also I would have you to understand thefe to bee of an ill juice, which have no pores in their skin, by which, as it were by rivers, the evil juice which is contrary to nature, may be evacuated and purged. And I have noted and observed, that those are thefe in danger of the Pestilence which have cancerous ulcers and flying sores in their noyes, and such as infected with the French Pocks, have by reason thereof, tumours and rotten ulcers, or have the Kings evil running upon them, the Leprofe or the Scab: and to conclude, all those that have fistulous and running ulcers in their bodies.
Concerning the Plague.

I think those that have quartaine Feavers are the better privilged for the same, because that by the Fit causing Sweat, that commeth every fourth day, they avoyd much of the evill juice that was engendered.

This is more like to bee true, than to think that the poyson that commeth from without, may be driven away by that which lurketh within.

Contrariwise, women that are great with child, as I have noted, because they have much ill juice, being prohibited from the accustomed evacuations, are very apt to take this disease, and do seldom recover after they are infected.

Who subject thereto.

Signes that the Plague is incured:

A good signe:

When the Swelling or Sore goeth or commeth before the Feaver, it is a good signe, for it declareth that the malignity is very weak and feeble, and that nature hath overcome it, which oft it selfe is able to drive so great portion thereof from the inner parts.

But if the Sore or tumour come after the Feaver, it is a mortall and deadly signe, for it is certain that it commeth of the venemous matter not translated, but diffpered, not by the victory of nature, but through the multitude of the matter, with the weight whereof nature is overcome.

When the Moone decreaseeth, those that are infected with the Pestilence are in great doubt and danger of death, because then the humours that were collected and gathered together before the full of the Moone, through delay and abundance, do swell the more, and the faculties by which the body is governed, become more weak and feeble, because of the imbecility of the native heat, which before was nourisshed and augmented by the light, and fo consequent on the heat of the full Moon: For as it is noted by Aristotle, the wantings of the Moone are more cold and weak: and thence it is that women have their menstrual fluxes chiefly or most commonly at that time.

In what Aire most contagious.

What effects force and confidence produce in the Plague.

This you may perceive and know, by reason that the keepers of such are sick, and the bearers which are not fearethfull, but very confident, although they doe all the baseft offices which may be for the sick, are commonly not infected and feldome dye thereof if infected.
Concerning the Plague.

CHAP. XVIII.

How a pestilent fever comes to be bred in us.

The Plague oftentimes findeth fuel in our bodies, and oftentimes allurements, to wit, the putrefaction of humours, or aptness to putrefce: but it never thence hath its first original, for that comes always from the defiled aire, therefore a pestilent fever is thus bred in us: The pestilent aire drawn by inspiration into the lungs, and by transpiration into the utmost mouthes of the veins and arteries spread over the skin, the blood or else the humours already putrefying or apt to putrefce therein, are infected and turned into a certain kind of malignity resembling the nature of the agent. These humours, like unquench't flame when it is first sprinkled with water, send forth a putrid vapour, which carried to the principal parts and heart especially, infecteth the vititious blood boiling in the ventricles thereof, and withereth also the vital spirits; and hence proceeds a certain feverish heat. This heat diffused over the body by the arteries, together with a maligne quality, taints all, even the solid parts of the bones with the pestiferous venome, and besides, causeth divers symptoms, according to the nature thereof, and the condition of the body and humours wherein it is. Then is the conflict of the malignity affailing, & nature defending, manifest, in which if nature prevale, it, using the help of the expulsiv faculty, will send & drive it far from the noble parts, either by sweats, vomits, bleeding, evacuation by ftoole or urine, buboes, carbuncles, pustules, spors, and other such kinds of breakings out over the skin. But on the contrary, if the malignity prevale, and nature be too weake, and yeeld, and that first he troubled with often panting or palpitation of the heart, then presently after with frequent faintings, the patient then at length will dye. For this is a great signe of the Plague or a pestilent Fever, if presently at the first, with no labour, nor any evacuation worth the speaking of, their strength failc them, and they become exceeding faint. You may find the other signes mentioned in our preceding discourse.

CHAP. XIX.

Into what place the Patient ought to betake himselfe so soone as he finds himselfe infected.

We have said that the perpetuall and first original of the pestilence commeth of the Aire, therefore so soone as one is blasted with the pestiferous Aire, after he hath taken some preservative against the malignity thereof, he must withdraw himselfe into some wholesome Aire, that is, cleane and pure from any venemous infection or contagion, for there is great hope of health by the alteration of the Aire, for we doe most frequently and abundantly draw in the Aire of all things, so that we cannot want it for a minute of time: therefore of the Aire that is drawn in, dependeth the correction, amendment, or increase of the Pesyon or malignity that is received, as the Aire is pure, sincere or corrupted.

There bee some that doe think it good to shut the patient in a close Chamber, shutting the windowes to prohibite the entrance of the Aire as much as they are able: But I thinke it more convenient that those windowes should bee open from thence that wind bloweth that is directly contrary unto that which brought in the venemous Aire: For although there be no other cause, yet if the Aire bee not moved, or agitated, but shut up in a close place, it will soone bee corrupted. Therefore in a close and quiet place that is not subject to the entrance of the Aire, I would with the patient to make wind, or to procure Aire with a thick and great cloth dipped or macerated in water and vinegar mixed together, and tied to a long Staffe, that by tolling it up and downe the close chamber, the wind or aire thereof may coole and re.
Concerning the Plague.

The patient must every day be carried into a fresh chamber, and the beds and the linnen cloaths must be changed: there must always be a clear and bright fire in the patients chamber, and especially in the night, whereby the air may be made more pure, clean, and void of nightly vapours, and of the filthy and pestilent breath proceeding from the patient, or his excrements. In the mean time, left (if it be in hot weather) the patient should be weakened or made more faint by reason that the heat of the fire doth disperse and waft his spirits, the floor or ground of the chamber must be sprinkled or watered with vinegar and water, or strewed with the branches of vines made moist in cold water, with the leaves and flowers of Water-lilies, or Poplar, or such like. In the fervent heat of summer bee must abstaine from Fumigations that doe smell too strongly, because that by assaaulting the head, they encrease the paine.

If the patient could goe to that coast, it were good to hang all the chamber where he lyeth, and also the Bed, with thicke or course linnen cloaths moistened in vinegar and water of Roses. I hole linnen cloaths ought not to be very white, but somewhat browne, because much and great whitenesse doth disperse the light, and by wafting the spirits, doth encreafe the paine of the head: for which cause also the Chamber ought not to bee very lightsome.

Contrariwise, on the night feasion there ought to bee fires and perfumes made, which by their moderate light, may moderately call forth the spirits.

Sweet scies may be made of little pieces of the wood of Juniper, Broom, Ash, Tamarisk, of the rinde of Oranges, Lemmons, Cloves, Benzoin, gum Arabick, Orris roots, Murrie, grossely beaten together, and laid on the burning coals put into a chafing dish. Truly the breath or smake of the wood or berries of Juniper, is thought to drive serpents a great way from the place where it is burnt. The vertue of the Ash-tree against venomous is so great, as Pliny testifich, that a serpen will not come under the shadow thereof, no not in the morning nor evening, when the shaddow of any thing is most great and long, but she will runne from it. I my selfe have proved that if a circle or compasse bee made with the boughes of an Ash-tree, and a fire made in the midst thereof, and a serpents put within the compasse of the boughs, that the serpents will rather runne into the fire than through the Ash boughes.

There is also another mean to correct the Aire. You may sprinkle vinegar with the decoction of Rue, Sage, Rosemary, Bay berries, Juniper berries, Cjem nuts, & such like, on stones or bricks made red hot, and put in a pot or pan, that all the whole chamber where the patient lyeth may be perfumed with the vapour thereof.

Alfo fumigations may bee made of some matter that is more groffe and clammy, that by the force of the fire the fume may continue the longer, as Zedoarie, Spikenard, Benzoin, Cinamon, Nutmegs, Cloves, of each one ounce and a halfe; of old Treacle, halfe an ounce: bruise them into a grave powder, and macerate them for the space of twelve hours in four ounce of white and strong wine, then distill them in a Limbeck of glasse on hot ashes, and in the distilled liquor wet a sponge, and then let it be tyed in a linnen cloath, or clofed in a boxe, and so often put unto the noftrills. Or take of the vinegar and water of rofes, of each foure ounces of Camphire, fixe ounces of Treacle, halfe a dram: let them be dissoled together, and put into a viall of glasse, which the patient may often put unto his nofe.

This Nodula following is more meet for this matter. Take of Rose leaves, two pugils

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The materials
for sweet fires.

Lib. 16. chap. 13.

Perfumes.

Sweet eunices.

A sweet water
to smell to.

A Nodula
to smell to.
Concerning the Plague.

Chap. XX.

What Diet ought to be observed, and first of the choice of Meat.

The order of diet in a pestilent disease ought to be cooling and drying: no slender, but somewhat full. Because by this kind of disease there commeth walking of the spirits, and exulsion of the faculties, which intereth often swoming, therefore that loafe must be prepared as foone as may be with more quantity of meates that are of easee concoction and digestion. Therefore I never saw any being infected with the pestilence that kept a slender diet, that recovered his health, but died; and few that had a good stomacke, and fed well, dyed. Sweet, groffe, moist and clammy meates, and thofe which are altogether, and exquifitely of subtile parts, are to be avoyded; for the sweet do easily take fire, and are foone enflamed; the moist will purfhee, the groffe and clammy obstruct, and therefore engender purefaction; thofe meats that are of subtile parts, over-much attenuate the humouris, and enflame them, and doe stirre up hot and sharp vapours into the braine, whereof commeth a Feaver. Therefore wee must eschew Garlike, Onions, Mustard, salts and spiced Meats, and all kind of Pulfe must alfo be avoided, because they engender groffe winds, which are the authors of obftrudtion; but the decoction of them is not alwayes to be refufed, because it is a provoker of urine. Therefore let this bee their order of diet: let their bread bee of Wheate or Barly, well wrought, well leavened and faered, neither too new nor too stale: let them bee fed with such meats as may bee easily concocted and digested, & may engender much laudable juice, and very little excrecentall, as are the flebfe of Wether-lambs, Kids, Leverets, Pulfers, Partridges, Pigeons, Thrufhes, Larkes, Queiles, Blacke-Birds, Turtle-Doves, Moor-Hennes, Phafians, and fuch like; avoyding water. Bowles. Let the Fleffe be moistened in Ver. juicke of unripe Grapes, Vinegar, or the juicke of Lemmons, Oranges, Cytrons, tart Pomegranates, Barberryes, Goofe-berries, or red Currant, or of garden, & wild forreall; for all these soure things are very wholefome in this kinde of disease, for they doe fpirre up the appetite, refite the venemous quality and purefaction of the humouris, reftraine the heat of the Feaver, and prohibit the corruption of the meates in the stomaeke. Although that thofe that have a more weake stomack, and are ended with a more exact fenfe, and are fubject to the Cough and difeaces of the Lungs, must not use thefe, unleffe they be mixed with Sugar and Cyynamon.

If the patient at any time be fed with fodder meats, let the brothe be made with Lettuce, Paullaine, Succory, Borage, Sertell, Hops, Buglolfle, Crefles, Burner, Moguls, Chervill, the cooling Seeds, french Barly and Oatmeale, with a little Saffron, for Saffron doth engender many spirits, and refitefeth pofton. To these opening roots may be added for to avoid obftrudtion: ye must be refueld by reafon of moistur. The fruit of Capers eaten in the beginning of the Meale provoke the appetite, and prohibit obftrudtions; but they ought not to bee feaoned with.
Concerning the Plague.

Lib. 22.

840

with overmuch Oyle and Salt, they may also with good success be put into Broths.

Fishes are altogether to be avoided, because they soon corrupt in the Stony; but if the patient be delighted with them, those that live in stony places must be chosen, that is to say, those that live in pure and sandy waters, & about rocks and floes, as are Trepus, Phelps, Pearsches, Gudgeons, and Cravies boiled in milk, Wikes, and such like. And concerning Sea-fish, he may be fed with Gilthead, Gurnards, with all the kinds of Codfish, Whittings not seasoned with salt, and Turbures.

Egges pouched and eaten with the juice of Sorrell, are very good. Likewise Barley water seasoned with the graines of a rare Pomegranate, and the Fever be vebement, with the seed of white Poppy. Such Barley water is easie to be concocted and digested, it cleanseth greatly, and moistens and mollifies the belly. But in some it procures an appetite to vomit, and pained of the head, and those must abstaine from it. But instead of Barley water they may use pap, and bread crammed in the decoction of a Capon.

For the second course, let him have raisons of the Sunne newly sodden in Rose water with Sugar, four Damask Prunes, tart Cherries, Pippins, and Katharine Peares.

And in the last end of the Meal, Quinces roasted in the Embres, Marmelate of Quinces, and conserve of Bugloffe or of Roses, and such like, may be taken: or else this pouder following.

Take of Coriander seeds prepared, two drams; of Pearle, Rose leaves, shavings of Hart-horne and Ivory, of each half a dram; of Amber two scruples; of Cinnamon one scruple; of Unicornes horse, and the bone in a Staggis heart, of each half a scruple; of Sugar of Roses, four ounces: Make thereof a pouder, and use it after meats.

If the patient be somewhat weak, he must be fed with Gelly made of the flesh of a Capon, and Veale sodden together in the water of Sorrell, Cardus benedictus, with a little quantity of Rose vinegar, Cinnamon, Sugar, and other such like, as the present necessity shall seeme to require.

In the night season for all events and mishapes, the patient must have ready prepared broth of meats of good digestion, with a little of the juice of Citrons or Pomegranates.

This restorative that followeth may serve for all. Take of the conserve of Bugloffe, Borage, Violets, Water-lilies, and Succory, of each two ounces; of the pouder of the Electuary Diamargaria Frigidum, of the Trochilites of Camphire, of each three drams: of Citron seeds, Cardus seeds, Sorrell seeds, the roots of Dipotamus, Tormentill, of each two drammes; of the broth of a young Capon, made with Lettuce, Purflaine, Bugloffe and Borage boiled in it, fixe pints; put them in a Lembcke of glass with the ash of two Pullets, of ten Partridges, and with fifteen leaves of pare gold: make thereof a distillation over a soft fire. Then take of the distilled liquor, half a pint, strain it through a woollen bagge, with two ounces of white Sugar, and half a dram of Cynamon: let the patient use this when he is thirsty. Or else put the flesh of one old Capon, and of a legge of Veale, two minced Partridges, and two drammes of whole Cinnamon without any liquor, in a lembcke of glaffe, well luted and covered, and so let them boile in Balneo Maria unto the perfect concocion. For so the fleshes will be boiled in their owne juice, without any hurt of the fire; then let the juicebe pressed out thence with a preffe: give the patient for every dose, one ounce of the juice with some cordial waters, some Trifanum, and Diamargaria frigidum.

The preserves of sweet fruits are to bee avoided, because that sweet things turn into choler, but the confession of tart prunes, Cherries, and fuch like may bee finely used. But because there is no kind of fickness so fo weakens the strength, as the plague, it is always necessary, but yet sparingly and often, to feed the patient, still having respect unto his custome, age, the region, and the time: for through emptiness there is great danger, lest that the venemous matter that is driven out to the superficial parts of the body, should be called back into the inward parts, by an hun-
Concerning the Plague.

Chap. XXI.

What drinketh the Patient infected ought to use.

F the fever be great and burning, the patient must abstain from wine, unless he be subject to swouning: and he may drink the oxymel following in stead thereof.

Take of faire water, three quarts, wherein boyle foure ounces of hony until the third part bee consumed, scumming it continu¬ ally; then strain it, and put it into a cleane veflel, and add thereto four ounces of vinegar, and as much cinamon as will suffice to give it a tafe. Or else a sugred water, as followed. Take two quarts of faire water, of hard fugar, fixe ounces, of cinamon, two ounces, strain it through a woollen bagge or cloth without any boiling; and when the patient will use it, put thereto a little of the juice of Citrons. The syrupe of the juice of Citrons excelleth amongst all others that are used against the pestilence.

The ufe of the Julep following is also very wholesome. Take of the juice of Sor¬ rell well clarified, halfe a pint, of the juice of Lettuce fo clarified, foure ounces, of the beft hard fugar, one pound, boile them together to a perfection, let them bee strained and clarified, adding a little before the end a little vinegar, let it be used betweene meales with boyled water, or with equall portions of the water of Sorrell, Lettuce, Scabious and Bugloss; or take of this former described Julep strained and clarified foure ounces, let it be mixed with one pound of the forenamed cordall waters, and boile them together a little. And when they are taken from the fire, put thereto of yellow Sanders one dram, of beaten Cinamon halfe a dram, strain it through a cloth: when it is cold let it be given the patient to drink with the juice of Citrons.

Those that have accustomed to drink Sider, Perry, Beer or Ale, ought to use that drink still, so that it be clear, transparent, and thin, and made of those fruits that are somewhat tart: for troubled & dreggish drink doth not only engender grosse humors, but also crudities, windines, and obstructions of the firt region of the body, whereof comes a fever.

Oxycrate being given in manner following, doth affwage the heat of the fever: The commodi¬ and reprefe the purtrefcion of the humours, and the fiercenefc of the venome, and alfo expelleth the water through the veines, if fo be that the patients are not trou¬ bled with fputting of blood, cough, yexing, and altogether weak of stomacke; for fuch muft avoyd all tart things.

Take of faire water, one quart; of white or red vinegar three ounces; of fine Sugar, foure ounces; of fyrup of Rofes, two ounces: boile them a little, and then give the patient thereof to drink. Or take of the juice of Lemmons & Citrons, of each halfe an ounce; of juice of foure Pomegranates, two ounces; of the water of Sorrell and Rofes, of each one ounce; of faire water boyled, as much as shall suffice: make thereof a Julep, and ufe it betweene meales. Or take of Sirupe of Lemmons and of red Currancc, of each one ounce; of the water of lilies, foure ounces; of faire water boyled, halfe a pinte; make thereof a Julep. Or take of the fyrups of water Lilies, and vinegar, of each halfe an ounce, disolve it in five ounces of the water of Sor¬ rell; of faire water one pinte: make thereof a Julep.

But if the patient be young, and have a strong and good stomacke, and cholericke by nature, I thinke it not unmeet for him to drinke a full and large draught of fou¬ taine water cold; for that is effeacuall to restraine and quench the heat of the Fever; and contrariwise, thy that drinke cold water often, and a very small quantity at a time, as the Smith doth sprinkle water on the fire at his Forge, doe encreafe the heat.

B b b
and burning, and thereby make it endure the longer. Therefore by the judgment of Col-
fas, when the disease is in the chiefe to the place of three or four days, cold water must be given unto him in great quantity, and if he may drink past his satiety, that when his belly and stomach are filled beyond measure, and sufficiently cooled, he may vomit.
Some doe not drink so much thereof as may cause them to vomit, but do drink even unto satiety, and so use it for a cooling medicine; but when either of these is done, the patient must be covered with many cloaths, and so placed that he may sleep, and for the most part, after long thirst, and watching, and after long fulness, and long and great heat, found sleep commen, by which great sweat is sent out, and that is a present help.
But thirst must sometimes be quenched with little pieces of Melons, Gourds, Cucumbers, with the leaves of Lettuce, Sorrell, and Purslane, made moist or foked in cold water, or with a little square piece of a Citron, Lemon, or Orange macerated in Rose water, & sprinkled with Sugar, and so held in the mouth, and then changed.

But if the patient be aged, his strength weak, degmatick by nature, & given to wine, when the state of the fever is somewhat past, and the chiefe heat beginning to aflwage, he may drink wine very much allayed at his meat, for to restore his strength, and to supply the want of the wafted spirits. The patient ought not by any means to suffer great thirst, but must mitigate it by drinking, or else allow it by washing his mouth with oxycrate and such like, and he may therein also wash his hands and his face, for that doth recreate the strength. If the flux or lask trouble him, he may very well take to drink steamed water, and also boiled milk, wherein many floes comming red hot out of the fire have beene many times quenched. For the dryness and roughneffe of the mouth, it is very good to have a cooling, moistening and lenifying lotion of the mucilaginous water of the infusion of the seeds of Quinces, Psyllium, id. Plen. wort, adding thereto a little Camphire, with the Water of Plantain and Roses; then cleanse and wipe out the fifth, and then moisten the mouth, by holding therein a little oile of甜e Almonds mixed with a little syrupe of Violets. If the roughneffe breed or degenerate into Ulcers, they must be touched with the water of the infusion of Sublimate, or Aqua Fortis.

But because we have formerly made frequent mention of drinking of water, I have here thought good to speak somewhat of the choice and goodneffe of waters. The choice of waters is not to be neglected, because a great part of our diet depends thereon, for besides that we use it either alone, or mixed with wine for drink, we also knead bread, boil meat, and make broths therewith. Many thinke that rain water which falls in summer, and is kept in a cisterne well place and made, is the whole forest of all. Then next thereto they judge that spring water which runs out of the tops of mountains, through rocks, cliifs and stones: in the third place they put Well water, of that which riseth from the foot of hills. Also the river water is good that is taken out of the midst or streame. Lake or pond water is the worst, especially if it stand still; for such is fruitful of and stored with many venemous creatures, as Snakes, Toads, and the like. That which comes by the melting of Snow and Ice is very ill, by reason of the too refrigerating faculty and earthy nature. But of spring and well waters of these are to be judged the best, which are inipide, without smell, & colour, such as are clear, warm and in winter, and cold in summer, which are quickly hot and quickly cold, that is, which are moft light, in which all manner pulse, tur-

For the dryness or roughneffe of the mouth.

For the Ulcers thereof.

The choice of waters.
Concerning the Plague.

Now we must treat of the proper cure of this disease, which must be used as soon as may be possible, because this kind of poison is swift in reflecting the celerity of the medicine. Therefore it is better to err in this, that you should think every disease to be pestilential in a pestilential feafon, and to cure it as the Pestifence: because that if long as the Ayre is polluted with the seeds of the Pestifence, the humours in the body are soon infected with the vicinity of such an ayre, lo that therein there happeneth no disease void of the Pestifence, that is to say, which is not pestilential from the beginning by his own nature, or which is not made pestilential.

Many begin the cure with blood-letting, some with purging, and some with Antidotes. We, taking a consideration of the substance of that part that is assaulted, first of all begin the cure with an Antidote, because that by its specificke property, it defends the heart from poison, as much as it is offended there with. Although there are also other Antidotes which preserve & keep the heart & the patient from the danger of Poison and the Pestifence, not only because they doe infringe the power of the poison in their whole substance, but also because they drive and expel it out of all the body by sweat, vomiting, scouring, and such other kinds of evacuations.

The Antidote must be given in such a quantity as may be sufficient to overcome the poison; but because it is not good to use it in greater quantities than needeth, lest it should overthrow our nature, for whose preservation only it is used, there to that which cannot be taken together and at once, must be taken at several times, that some portion thereof may daily be used so long, until all the accidents, effects and impressions of the poison be past, and that there be nothing to be feared. Some of the Antidotes consist of portions of venemous things, being tempered together, and mixed in an apt proportion with other medicines, whose power is contrary to the venom: as Treacle, which hath for an ingredient the flesh of Vipers, that it being thereto mixed may serve as a guide to bring all the antidote unto the place where the venenate malignity hath made the chief impression; because by the similitude of nature and sympathy, one poison is suddenly snatched and carried unto another.

There are other absozute poisonous, which nevertheless are Antidotes one unto another: as a Scorpion himself curseth the prick of a Scorpion. But Treacle and Mithridate excel all other Antidotes: for by strengthening the noblest part, and the mansion of life, they repair and recreate the wasted Spirits, and overcome the poison, not onely being taken inwardly, but also applied outwardly to the region of the heart, Botches and Carbuncles: for by an hidden property they draw the poisons unto them, as Amber doth Chaffe, and digest it when it is drawn, and spoile and robbe it of all its deadly force; as it is declared at large by Galen, in his book de Theriac ad Pisonem, by most true reasons and experiments. But you will say that these things are hot, and that the Plague is often accompanied with a burning Fever. But thereto I answer, there is not so great danger in the Fever as in the Pestifence, although in the giving of Treacle, I would not altogether frame to neglect the Fever, but think it good to minifier or apply it mixed with cordial cooling medicines, as with the Trochitez of Camphire, syrup of Lemons, of water Lilies, the water of Sorrell, and such like. And for the same cause wee ought not to choose old Treacle, but that which is of a middle age, as of one or two years old: to those that are strong, you may give half a dramme, and to thofe that are more weak, a dram.

The patient ought to walke presently after that hee hath taken Treacle, Mithridate, or any other Antidote; but yet as moderately as hee can: not like unto many which when they perceive themselves to bee infected, doe not cease to course and run up and downe, until they have no strength to sustaine their bodies, for lo they dissolve nature, so that it cannot suffice to overcome the contagion. After mode, rate
rate walking, the patient must be put warm to bed, and covered with many clothes, &
warm brick-bats or tiles applied to the soles of his feet; or instead thereof you may
use warm bladders filled with hot water, and apply them to the groines and arme-
holes, to provoke sweat: for sweating in this disease is a most excellent remedy,
both for to evacuate the humourours in the Feaver, and also to drive forth the maligni-
ity in the Pellelth, although every sweat brings not forth the fruit of health. For
George Agricola faith, that hee saw a woman at Misnia in Germanie, that did sweat
for the space of three days, that the bloud came forth at her head and breath, & yet
nevertheless shee died.

This potion following will provoke sweate. Take the roots of China shaved in
thine pieces one ounce and halfe, of Guajacum two ounces; of the barke of Ta-
mariske one ounce; of Angelica roots two drams; of the shaving of Hart-horne one
ounce; of Juniper berries three drams; put them into a viall of glasse that will contain
five quarts, put thereto foure quarts of running or river water that is pure and cleare,
macerate them for the space of one whole night on the hot allies: and in the mor-
ning boil them all in Balne Marie, untill the halfe be conformed, which will bee
done in the space of five hours; then let them be strained through a bagge, and then
strained againe, but let that be with fixe ounces of sugar of Roses, and a little Treac-
le: let the patient take eight ounces or fewer of that liquor, and it will provoke
sweat. The powder following is also very profitable. Take of the leaves of Dislum-
num, the roots of Tormentill, Betony, of each halfe an ounce, of bole Armenick
prepared one ounce, of Terr Siguilata three drams, of Aloes and Myrrhe, of each
half a dram, of Saffron one dram, of Masticke two drams: powder them all accor-
ding to art, and give one dram thereof dissolved in Rosse-water or the water of wild
forre, and let the patient walke & foone as he hath taken that powder; then let him
be hid in his bed to sweat as I have shewed before.

The water following is greatly commended against poysion. Take the roots of
Gerani & Cyperus, of each three drams; of Cardani beneclistae, Burnet, of each one
handfull; of Sorrell seeds and Dives-bits, of each two pugils; of Ivie and Juniper
berries, of each halfe an ounce; of the flowers of Buglofe,Violets and red Roses, of
each two pugils: powder them somewhat groffely, then foake or steep them for a
night in white wine and Rosse water, then add thereto of bole Armenicke one
ounce, of Trecacle halfe an ounce, diffil them all in Balne Marie, and keep the diffilled
liquor in a viall of glasse well covered or close flopped for your use: let the patient take
fixe ounces thereof with Sugar and a little Cinamon & Saffron; then let him walk,
and then sweat as is aforesaid: the Trecacle and cordiall water formerly prescribed
are very profitable for this purpose. Also the water following is greatly commen-
ded. Take of Sorrell fixe handfulls, of Rue one handfull: dry them & macerate them
in vinegar for the space of foure and twenty hours, adding thereto foure ounces of
Trecacle: make thereof a distillation in Balne Marie, and let the diffilled water bee
kept for your use, and fo foone as the patient doth thinke himselfe to be infected, let
him take foure ounces of that liquor, then let him walke and sweat. He must leave
sweating when he begins to waxe faint and weake, or when the humour that
 runs downe his body begins to waxe cold, then his body must be wiped with warme
clothes, and dryed. The patient ought not to sweat with a full stomache, for so the
heat is called away from performing the office of concoction: also he must not sleep
when he is in his sweat, lest the malignity goe inwardly with the heat and spirits unto
the principall parts; but if the patient bee much inclined to deep, he must bee kept
from it with hard rubbin, and bands tyed about the extreme parts of his body, and
with much noile of those that are about him, and let his friends comfort him
with the good hope that they have of his recovery; but if all this will not
keepe him from sleepe, diffOLVE Calcecinium in tart Vinegar, and Aqua viva, and let
it bee injected into his nofterls: and let him bee kept continually waking the firft
day, and on the second and third, even unto the fourth; that is to say, unto the per-
fect expulfion of the venome; and let him not sleep above three or foure hours on
a day and night. In the meanes time let the Phyfician that hall bee prefent confider
all things by his strength: for it is to be feared, that great watchings will diffolve the
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ly from within, should be troubled. So wee often see in those who are purged or let blood for such Buboes as come through unlawful copulation, that the matter is thereby made contumacious, and by drawing it inwardly, it speedily causeth the French Pocks.

Wherefore, when Buboes, Carbuncles and other pestilent eruptions appeare, which come through the default of the Aire, we ought to abstain from purging and phlebotomie; but it is sufficient to force-arms the heart inwardly and outwardly with Antidotes that are endued with a proper vertue of resisting the poison. For it is not to be doubted, but that when nature is debilitated with both kinds of evacuation, and when the spirits together with the blood are exhausted, the venemous Aire will lose its force, and be received into the empty body, where it exerciseth its tyranny to the utter destruction thereof.

The like event was noted in the hoar-frost that we spake of before: that is to say, that the patients waxed worse and worse by purging and phlebotomie, but yet I do not disallow either of those remedies, if there be great fulneffe in the body, especially in the beginning, and if the matter have a cruel violence, whereof may bee feared the breaking in unto some noble part. For wee know that it is confirmed by Hy. periaster, that what disease soever is caus’d by repletion, must be cured by evacuation: and that in diseases that are very sharp, if the matter do swell, it ought to be remedied the same day, for delay in such diseases is dangerous; but such diseases are not caus’d or inflicted upon mans body by reason or occasion of the pestilence, but of the diseased bodies, and diseases themselves commixed together with the Pestilence; therefore then perishadventure it is lawful to purge strongly, and to let a good quantity of blood, lest that the pestilenl venome should take hold of the matter that is prepared, and to infect it with a contagion, whereby the Pestilence taketh new and farrenger strength; especially as Celsus admonisheth us, where he faith, that, by how much the sooner those sudden invasions do happen, by so much the sooner remedies must be used, yea or rather rashly applied; therefore if the veins swell, the face waxe fiery red, if the arteries of the temples beat strongly, if the patient can very hardly breathe by reason of a weight in his stomach, if his spittle be bloudly, then ought he to bee let blood without delay, for the causes before mentioned. It seems best to open the liver vein on the left arm, whereby the heart and the spleene may be better discharg’d of their abundant matter; yet blood-letting is not good at all times, for it is not expedient when the body beginneth to waxe stiffe by reason of the comming of a Fever, for then by drawing back the heat and spirits inwardly, the outward parts being deftitute of blood, waxe stiffe and cold; therefore blood cannot be letten then without great losse of the strength, and perturbation of the humours. And it is to be noted, that when those plethoricke caufes are prent, there is one Indication of blood-letting in a simple pestilent Fever, and another in that which hath a Bubo, i.e., a Boch or a Carbuncle joined therewith. For in one or both of these, being joyned with a vehement & strong burning Fever, blood must be letten by opening the veins that is nearest unto the humour or swelling against nature, keeping the straighthnes of the fibres, that this being open, the blood might be drawn more directly from the part affected; for all and every retraction of putrefied blood unto the noble parts, is to be avoided, because it is noysole and hurtful to nature, and
to the patient. Therefore, for example take, admit the patient be plethoricke by repletion, which is called Ad vels, id est, unto the vessels, and Ad vols, id est, unto the strength: and therewithall he hath a tumour that is pestillent in the parts belonging unto his head or necke, the blood must bee let out of the cephalick or median vein, or out of one of their branches dispersed in the arme on the grieved side. But if through occasion of fatue, or any other such like cause, those veins doe not appear in the arme, there bee some that give counsell in such a case to open the veine that is betweene the fore-finger and the thumbe, the hand being put into warme water, whereby that veine may swell and be filled with bloud, gathered thither by means of the heat.

If the tumour be under the arme-hole, or about those places, the liver veine, or the median must be opened which runneth alongt the hand: if it be in the groine, the vein of the hamme, or Sophene, or any other veine above the foone that appeareth well, but alwaies on the grieved side. And phlebotomie must bee performed before the third day: for this diseafl is of the kind or nature of harpe diseases; because that within foure and twenty houres it runneth past helpe. In letting of bloud you must have consideration of the strength. You may perceive that the patient is ready to fwoone, when that his forehead waxeth moyst, with a small sweate suddenly arising, by the aking or paine at the flomacke, with an appetite to vomit, and desire to goe to flooe, gaping, blackenelle of the lippes, and sudden alteration of the face into palenef: and lastly most certainly by a small and slowe pulse: and then you must lay your finger on the veine, and stop it untill the patient come to himselfe againe, either by nature, or else restored by art, that is to say, by giving unto him bread dipped in wine, or any other such like thing: then, if you have not taken bloud enough, you must let it goe againe, and bleed so much as the greeneffe of the diseafe, or the strength of the patient will permit or require: which being done, some one of the Antidotes that are prescribed before will be very profitable to be drunk, which may repair the strength, and infringe the force of the malignity.

Chap. XXV.

Of purging medicines in pestilencie diseases:

If you call to minde the proper indications, purging shall semne nece-

The ancient Physicians have greatly commended Agarick for this diseafe, because it doth draw the noyfome humours out of all the members: and the vertues thereof are like unto those of Treacle, for it is thought to strengthen the heart, and to draw out the malignity by purging. To those that are strong the weight of two drams may be given, and to those that are more weak, half a dram. It is better to give the infusion in a decoction, than in substance; for being elected and prepared truly into Trochifies, it may be called a moft divine kinde of medicine. Antimomum is highly prayed by the experience of many; but because I know the

...
Concerning the Plague.

The Venenum of Mugwort.

Take good Mustard half an ounce, of Treacle or Mithridate the weight of a Bean, diffuse them in white wine, and a little Aquavitae, and let the patient drink it, and sweat thereon with walking. You may also roast a great Onion made hollow, and filled with half a dram of Treacle and Vinegar under the embers; and then strain it, and mix the juice that is pressed out of it with the water of Sorrel, Cardium Beneficium, or any other cordial thing, and with strong wine, and give the patient to drink thereof to provoke sweat, and to repel the malignity. Or else take as much Garlic as the quantity of a big Nut; of Rue and Celandine, of each twenty leaves, bruise them all in white wine and a little Aquavitae; then strain it, and give the patient thereof to drink. There be some that do drink the juice that is pressed out of Celandine and Mallowe, with three ounces of Vinegar, and halfe an ounce of the oyle of Wall-nuts, and then by much walking doe unburthen their stomack and belly upwards and downewards, and so are helped. When the venenum ayre hath alrea-
MLB. 22.

Concerning the Plague.

already crept into and infected the humors, one dram of the dried leaves of the Bay tree macerated for the space of two days in Vinegar and drunk, is thought to bee a most sovereign medicine to provoke sweat, looseness of the belly, and vomiting.

Marshalls in his Treatise of Morbo Gallico writeth, that the powder of Mercury minislated unto the patient with the juice of Cardamomum, or with the elec句ry de Gemmis, will drive away the Pestilence before it be confirmed in the body, by provoking vomit, looseness of the belly & sweatenone dram of Calcehanthus or white Copperole dissolved in Rose-water, performeth the like effect in the same disease. Some do give the patient a little quantity of the oyle of Scorpions with white wine to expel the poison by vomiting, & therewithall they anoint the region of the hear, the breast and the wrists of the hands. I think these very meet to be used often in bodies that are strong and well exercised, because weaker medicines do evacuate little or nothing at all, but only move the humours, whereby commeth a Fever. When a sufficient quantity of the malignity is evacuated, then you must minislate things that may strengthen the belly and stomack, and withhold the agitation or working of the humours: and such is the confection of Alkermes.

CHAP. XXVI.

Of many Symptomes which happen together with the Plague: and of the pains of the head.

If the malignity be carryed into the braine, and nature be not able to expell it, it inflames not only the braine, but also the membranes that cover it; which inflamation doth one while hurt, trouble, or abolish the imagination, another while the judgement, and sometimes the memory, according to the situation of the inflammation, whether it bee in the former, hinder or middle part of the head; but hereof commeth always a Phrenie, with fiery redness of the eyes and face, and heaviness and burning of the whole head. If this will not be amended with Clifters, and with opening the Cephalicke veins in the arms, the arteries of the temples must be opened, taking so much blood out of them, as the greatness of the symptoms and the strength of the patient shall require and permit. Truly the incision that is made in opening of an artery will clofe and joyn together as readily, and with as little difficulty, as the incision of a vein.

And of such an incision of an artery, commeth present helpe, by reason that the tenour and tharpe vapours do plentifully breath out together with the arterious blood. It were also very good to provoke a flux of blood at the nose, if nature be apt to exonerate her selfe that way. For as Hippocrates faith, when the head is grieved, or generally ached, if matter, water, or blood flow out at the nostrils, mouth or ears, it presently cures the disease. Such bleeding is to be provoked by strong blowing, or striving to cleanse the nose, by scratching or picking of the inner sides of the nostrils, by prickings with an horse-hair, and long holding downe of the head.

The Lord of Fontains, a Knight of the Order, when we were at Bayon, had a bleeding at the nose, which came naturally for the space of two days, and thereby hee was freed of a pestilent Feaver which he had before, a great sweat rising therewhitc, and shortly after his Carbuncles came to suppuration, and by Gods grace he recovered his health being under my cure. If the blood doe flow out and cannot be stopped when it owght, the hands, arms, and legges must be tyed with bands, and sponges wet in Oxy crete must be put under the arm and thigh holes, cupping-glaises must be applied unto the duggs, the region of the liver and spleen; and you must put into the nostrils, the done of the willow tree, or any other altringent medicine, incorporated with the haires pluckt from the flanke, belly or throat of a Hare, bole Armenice, Terra Sigillata, the juice of Planteain and Knot-graffe mixed together; and further more the patient must be placed or laid in a coole place. But if the pain bee nothing mitigated notwithstanding all these fluxes of blood, we must come to medicines that procure sleep, whose forms are these.

Take
Concerning the Plague.

Take of green Lettuce one handful, flowers of water Lilies and Violets, of each two pugs, one head of white Poppy bruised, of the four cold feeds, of each two drams, of Liquorice and Raisins, of each one dram: make thereof a decoction, and in the straining dissolve one ounce and an half of Diacodium: make thereof a large potion to be given when they go to rest. Also a Barly-cream may be prepared in the water of water-Lilies and of Sorrell, of each two ounces, adding thereto six or eight grains of opium: of the four cold feeds, and of white Poppy seeds, of each halfe an ounce, and let the same be boiled in broths with Lettuce and Purslane; also the Pils de Cynogloffe, id est, Hounds tongue may be given, Clifters that provoke sleep must be used, which may be thus prepared:

Take of Barly-water, halfe a pint; oyle of Violets and water-Lilies, of each two ounces; of the water of Plantaine and Purslane, or rather of their juices, three ounces; of Camphire seven grains, and the whites of three eggs: make thereof a Clifter. The head must be fomented with Rose-vinegar, the hair being first thaven away, leaving a double cloth wet therein, and often renewed. Sheepes lungs taken warme out of the bodies, may be applied to the head, as long as they are warme. Cupping-glaifes with and without scarification, may be applied to the neck and shoulder-blades. The arms and legs must be strongly bound, being first well rubbed to divert the sharp vapours and humours from the head. Frontals may also be made on this manner. Take of the oyle of Roses and water-Lilies, of each two ounces, of the oyle of Poppy halfe an ounce, of Ros-vinegar one ounce, of Camphire halfe a dram, mixe them together. Also Nodules may bee made of the flowers of Poppies, Henbane, water-Lilies, Mandrakes beaten in Rose-water with a little Vinegar, and a little Camphire, and let them be often applied to the nostrils: for this purpose Cataplasmes also may be laid to the forehead. As, Take of the mucilage of the seeds of Ficium id est, Flea-wort, and Quince seeds extrated in Rose-water, three ounces, of Barly-meale foure ounces; of the powder of Rose-leaves, the flowers of water-Lilies and Violets, of each half an ounce, of the feeds of Poppies and Purslane of each two ounces; of the water and vinegar of Roses, of each three ounces: make thereof a Cataplasm, and apply it warme unto the head. Or take of the juice of Lettuce, water-Lilies, Henbane, Purslane, of each halfe a pint, of Rose-leaves in powder, the feeds of Poppy, of each halfe an ounce, oyle of Roses three ounces, of Vinegar two ounces, of Barly-meale as much as shall suffice: make thereof a Cataplasm in the forme of a liquid Pulsis. When the heate of the head is mitigated by these medicines, and the inflammation of the braine allwaged, we must come unto digesting and resolving fomentations, which may dissipate the matter of the vapours. But commonly in paine of the head, they doe use to bind the forehead and hinder part of the head very strongly, which in this case must bee avoyded.

Chap. XXVII.

Of the heat of the Kidnies.

He heat of the kidnies is tempered by anointing with unguent, refri¬
gerans Galen, newly made, adding thereto the whites of eggs well beaten, that so the ointment may keep moyst the longer; let this lin¬
iment bee renewed every quarter of an houre, wiping away the re¬licues of the old, Or, R, q. ref. id, Stop, plac. s. sp. alb. ovorum s. soli

An ointment
for the head.

refact, or nenuphan. s. aceti ref. s. mustarde ad ulsum. When you have

An ointment
for the head.

anointed the part, lay thereon the leaves of water-Lilies or the like cold herbs, & then presently THEREUPON a double linnen cloth dipped in oixycrate & wrung out againe, and often changed; the patient shall not lye upon a feather bed, but on a quilt fried with the chaffe of oates, or upon a matte with many doubled clothes or Chamulet spread thereon. To the region of the heart may in the mean time bee applied a refrigering and alesxeriall medicine, as this which followeth.

R.
Concerning the Plague.

Of the Eruptions and Spots, which commonly are called by the name of Purples and Tokens.

The skinne, in pestilent seavers, is marked and variegated in divers places with spots, like unto the bitings of Fleas or Gnats, which are not alwaysimple, but many times arise in forme like unto a graine of millet.

The more spots appeares, the better it is for the patient: they are of divers colours according to the virulence of the malignity, and condition of the matter, as red, yellow, brown, violet, or purple, blew and blacke. And because for the most part they are of a purple colour, therefore wee call them Purples. Others call them Lentile, because they have the colour and forme of Lentiles. They are also called Papiliones (i.e.) Butterflies, because they doe suddenly seize or fall upon divers regions of the body, like unto winged Butterflies, sometimes the face, sometimes the armes and legges, and sometimes all the whole body, often times they doe not only affect the upper part of the skin, but goe deeper into the fleth, specially when they proceed of matter that is groffe and adufl. They doe sometimes appear great and broad, affecting the whole arme, legge or face, like unto an Erysipelas: to conclude, they are divers according to the variety of the humour that offendeth in quality or quantity.

If they are of a purple or black colour, with often swelling, and sink in suddenly without any manifest cause, they foreshow death.

The cause of the breaking out of those spots, is the working or heat of the blood, by reason of the cruelty of the venome received, or admitted. They often arise at the beginning of a pestilent seaver: many times before the breaking out of the Sore, or Botch, or Carbuncle; and many times after: but then they shew to great corruption of the humours in the body, that neither the Sore, nor Carbuncles will suffice to receive them, and therefore they appear as forerunners of death. Sometimes they break out alone, without a Botch or Carbuncle; which if they bee red, and have no evil symptoms joyned with them, they are not wont to prove deadly: they appear, for the most part, on the third or fourth day of the diseafe, and sometimes later, and sometimes they appear not before the patient be dead, because the working or heat of the humours being the off-spring of putrefaction, is not as yet restrained and caufed.

Wherefore then principally the putrid heat, which is greatest a little before the death of the patient, drives the excremental humours, which are the matter of the spots unto the skin, or else because nature in the last conflict hath contended with some greater endeavour than before (which is common to all things that are ready to dye) a little before the instant time of death, the pestilent humour being pefsemly driven unto the skinne, and nature thus weakened by this extreme conflict, falleth downe prostrate, and is quite overthrowne by the remnant of the matter.
Chap. XXIX.

OF THE CURE OF Eruptions and Spots.

They are to be cured by drawing forth.

UI must first of all take heed left you drive in the humour that is coming outwards with repercussives: therefore beware of cold, all purging things, Phlebotomy, and drowsie or found sleeping. For all such things do draw the humors inwardly, and work contrary to nature. But it is better to provoke the motion of nature outwardly, by applying of drawing medicines outwardly and ministring medicines to provoke sweat inwardly; for otherwife by repelling & slopping the matter of the eruptions, there will be great danger left the heart be opprefled with the abundance of the venom flowing back; or else by turning into the belly, it infectes a mortal bloody fluxe: which discumodities that they may bee avoided, I have thought good to set downe this remedy, whose efficacy I have knowne and proved many times, and on divers persons, when by reason of the weakneffe of the expulsiv faculty, and the thickneffe of the skinne, the matter of the spots cannot break forth, but is constrained to linke under the skin, lifting it up into bunches and knobs.

I was brought unto the invention of this remedy, by comparison of the like. For when I understood that the eftenee of the French pockes (and likewise of the pestilence) consisted in a certain hidden virulency, and venemous quality, I soon subscribed unto that opinion, that even as by the anointing of the body with the unguent compounded of quick-silver, the groffe and clammy humors which are fixed in the bones, and unmoveable, are dissolved, relaxed, and drawn from the center into the superficial parts of the body, by strengthening and stirring up the expulsiv faculty, and evacuated by sweating and fluxing at the mouth, that so it should come to passe in pestilent Feavers, that nature being strengthened with the same kinde of union, might unloade her selfe of some portion of the venemous and pestilent humour, by opening the pores and passages, and letting it break forth into spots and pultures, and into all kind of eruptions. Therefore I have anointed many in whom nature seemed to make passage for the venemous matter very slowly, first loosing their belly with a Clifter, and then giving them Treacle water to drinke, which might defend the vitall faculty of the heart, but yet not distend the stomack,as though they had had the French pockes, and I obtained my expected purpose: in stead of the Treacle water you may use the decoction of Guajacum, which doth heat, dry, provoke sweat, and repel putrefaction, adding thereunto vinegar, that by the subtlety thereof, it may pierce the better, and withstand the putrefaction. This is the description of the unguent.

Anointment to draw them forth when as they appear too Body.

Take of Hogs-grease, one pound, boyle it a little with the leaves of Sage, Time, Rosemary, of each halfe an handfull, straine it, and in the straining extinguih five ounces of quick-silver, which hath bin first boyled in vinegar with the forementioned herbs; of Sal Nitrum, three drammies; the yeles of three egges boyled unti they be hard, of Treacle and Mithridate, of each halfe an ounce; of Venice Turpentine, oyle of Scorpions and Bayes, of each three ounces; incorporate them altogether in a morter, and make thereof an unguent, wherewith anoint the patients armes-holes and groines, avoiding the parts that belong to the head, breast and backbone: then let him bee laid in his bed and covered warme, and let him sweat there for the space of two hours, and then let his body bee wiped and cleansed, and if it may be let him be laid in another bed, and there let him be refreshed with the broth of the decoction of a Capon, rear egges, and with such like meats of good juice that are easie to be concorded and digested, let him be anointed the second and third day, unleffe the spots appeare before.

If the patient fluxe at the mouth, it must not bee stopped: when the spots and pultures doe all appeare, and the patient hath made an end of sweating, it shall be convenient to use diureticke medicines, for by these the remnant of the matter of the spots, which happily could not all breath forth, may easly be purged and avoyded by urine.
Concerning the Plague.

If any noble or gentlemen refuse to be anointed with this unguent, let them be enclosed in the body of a Mule or Horse that is newly killed, and when that is cold, let them be layed in another, until the pustules and eruptions doe break forth, being drawn by that natural heat. For so Mathiolius writeth that Valentiu[m], the sonne of Pope Alexander the first, was delivered from the danger of most deadly poysom, which he had drunk.

CHAP. XXX.

Of a pestilenti Bubo, or Plague-sore.

Pestilent Bubo is a tumor at the beginning long and moveable, and in the state, and full perfection stopped, and with a sharp head, unmoveable and fixed deeply in the glands, or kernels; by which the brain exonerates it selfe of the venemous and pestiferous matter into the kernels that are behind the ears, and in the neck: the heart, into those that are in the arm-holes; and the liver, into those that are in the groin: that is, when all the matter is grosse and clammy, so that it cannot be drawn out by spots and pustules breaking out on the skin, and to the matter of a Carbuncle is sharpe, and so fervent, that it maketh an Etchur in the place where it is fixed. In the beginning, while the Bubo is breeding, it maketh the patient to feel, as it were, a cord or rope stretched in the place, or a hardened nerve with prickling pain: & shortly after the matter is raised up as it were into a knob, and by little and little it groweth bigger, and is enflamed, these accidents before mentioned accompanying it. If the tumour be red, and encrease by little and little, it is a good and salutary signe: but if it be livid or black, and come very slowly unto his just bigness, it is a deadly signe: it is also a deadly signe if it encrease suddenly, and come unto his just bignesses as it were with a swift violence, and as in a moment, have all the symptoms in the highest exceffe, as paine, swelling and burning. Buboes or Sores appear sometimes of a natural colour, like unto the skinne, and in all other things like unto an oedemacous tumour, which notwithstanding will sodaincly bring the patient to destruction, like those that are livide and black, wherefore it is not good to tryst too much to those kindes of tumours.

CHAP. XXXI.

Of the cure of Buboes, or Plague-sores.

So soon as the Bubo appears, apply a Cupping-glasse with a great flame unto it, unless it be that kind of Bubo which will suddenly have all the accidents of burning and swelling in the highest nature; but first the skinne must be anointed with the oyle of lillies, that so it being made more loose, the Cupping-glasse may draw the stronger and more powerfully; it ought to flieke to the part for the space of a quarter of an houre, & be renewed and applied again every three quarters of an houre, for so at length the venom shall be the better drawn forth from any noble part that is weak, and the work of suppuration or resolution, whichsoever nature hath affayed, will the better and sooner bee abfolvd and perfected: which may bee also done by the application of the following ointment.

Take of Unguentum Diathaea one ounce and an halfe; oile of Scorpions halfe an ounce, of Mithridate disdilved in Aquavitae, halfe a dramme: this liniment will very well relaxe and loofen the skin, open the pores thereof, & spend forth portion of that matter which the Cupping-glasse hath drawne thither; in stead thereof mollifying fomentations may bee made, and other drawing and suppurating medicines, which shall be described hereafter.

A Veisicatory applied in a meet place below the Bubo proffes them very much.
Concerning the Plague.

but not above, as for example. If the Bubo be in the throat, the Vificatory must be applied unto the shoulder-blade on the same side ; if it be in the arme-holes, it must be applied in the midst of the arm, or of the shoulder-bone, on the inner side : if in the groin, in the midst of the thigh on the inner side, that by the double passage that is open for to draw out the matter, the part wherein the venome is gathered together, may be the better exconstrated.

Spurge, Crow-foot, Artichart, Bear-foot, Briony, the middle barke of Travelers-joy, the rindes of Muller, Flammula or upright Virgins-bower, are fit for raising blisters. If you cannot come by these simples medicines, you may apply this which followeth, which may be prepared at all times.

A compound vificatory.

Take Cambarides, Pepper, Euphorbium, Pellitory of Spain, of each half a dram; of four leafen, two drammes; of Mustard one dramme, and a little Vinegar; the vinegar is added thereto to withhold or restrain the viciemency of the Cambarides ; but in want of this medicine it shall suffice to drop sealing oyle or water, or a burning candle, or to lay a burning coale on the place : for so you may raise blisters, which must preferably be cut away, and you must see that you keep the ulcers open & flowing as long as you can, by applying the leaves of red colworts, Beete, or Livie, dipped in warme water, and anointed with oyle or fresh butter. Some apply Cauteries, but Vificatories work with more speed : for before the Eschar of the Cauteries will fall away, the patient may dye ; therefore the ulcers that are made with Vificatories will suffice to evacuate the pestilent venome, becaufc that doth worke rather by its quality than its quantity. Let the abscess be fomented as is showed before ; and then let the medicine following, which hath vertue to draw, be applied.

Fill a great onion, being hollowed, with Treacle and the leaves of Rue, then roast it under the hot Embers, beat it with a little Leaven, and a little Swines greafe, and so apply it warme unto the abscess or fore; let it be changed every fixe hours. Or Take the roots of Marsh-mallowes and Lilliees, of each half a pound; of Line, Fennugreek, and Mustard seeds, of each halfe an ounce; of Treacle one dramme; ten Piggis, and as much Hoggis greafe as shall suffice: make thereof a catsaplafme according to Art. Or, take of Onions and Garlicke roasted in the embers, of each three ounces : bruifie them with one ounce of lower leaven, adding thereto Magnesium Bofcon, one ounce; Treacle one dramme; Mithridate halfe a dramme; of old Hoggs greace one ounce, of Cambarides in pouder one scruple, of Pigeons dung two drams beat them and mixe them together into the forme of a catsaplafme. Hereunto old Rennet is very profitable, for it is hot, and therefore attractive, being mixed with old Leaven and Bofcon: you ought to use thile untill the abscess be grownne unto its full ripenesse and bignesse, but if presently after the beginning there bee great inflammation, with tharpe paine, as it often happeneth, especially when the abscesses be of the kinde of Carbuncles, wee must abstaine from those remedies that are hot and attractive, and also from those that are very emplastick and clammy; because they doe altogether clofe the pores of the skin, or becaufe they resolve the thinner part of the collected matter, which if it might remain, would bring the other sooner to fuppuration: or else becaufe they may perchance draw more quantity of the hot matter than the part can bear, whereof commeth rather corruption than maturati- on: and laft of all becaufe they encreafe the feaver and pain, which infcreaseth danger of a convulsion or mortall Gangrene. Therefore in such a cafe it is best to use cold and temperate local medicines, as the leaves of Henbane and Sorrell rousted under the coales, Colens palts, and such like.

There are many that for fear of death, have with their owne hands pulled away the Bubo with a pair of Smithes Pincers: others have digged the flesh round about it, and so gotten it wholly out. And to conclude others have become fo mad, that they have thrust an hot iron into it with their owne hand, that the venome might have a passage forth: of all which I doe not allow one; for such abscesses doe not come from without, as the bitings of virulent beasts, but from within, and moreover becaufe pain is by these means encreased, and the humour is made more maligne and fierce. Therefore I think it sufficient to use medicines that relaxe, open the pores of the skinne, and digest portion of the venome by transpiration, as are thefe that follow.
follow. Take the roots of Marigold and Lilies, of each fixe ounces; of Chamomill and Melilote flowers, of each halfe a handfull; of Linseeds halfe an ounce; of the leaves of Rue halfe a handfull: Boyle them and straine them, dip spongeges in the draining, and therewith let the tumour bee fomented a long time. Or, Take the

crum of hot bread, and sprinkle it with Treacle-water, or with aqua viva, and Cowes milk or Goates milke, and the yolks of three egges, put them all one dupes or flaxe, and apply them warme unto the place. Or, Take of foure Rye leaven foure ounces; of Basilicon two ounces; three yolkes of egges; oyle of Lilies two ounces; Treacle one dram; let it be received on flapes, and applied in like manner. Or, Take of Dicheylon and Basilicon, of each two ounces; oyle of Lilies one ounce and an halfe; let them be melted and mixed together, and let it be applied as is above faid. When you see, feel, and know, according to reason, that the Bubo is come to perfect suppuration, it must be opened with an incision knife, or an actual or potential Cautery, but it is best to be done with a potential Cautery, unleffe that happily there be great inflammation, because it doth shew the venome from beneath unto the superficial parts, and maketh a larger orifice for the matter that is contained therein: neither must it be looked for, that nature should open it of her selfe, for then it were danger that left while nature doth worke slowly, a venemous vapour should bee flurred up, which frighten the heart by the arteries, the braine by the nerves, and the liver by the veins, should cause a new increace of the venemous infection. For feare whereof there be some that will not expect the perfect maturation and suppuration, but as it were in the midst of the crudity and maturity will make an orifice for it to passe forth at; yet if it be done before the tumour be at his perfect maturity, paine, a Fever, and all accidents are flurred up and engaged, whereof commeth a maligne ulcer that often degenerates into a Gangrene. For the most part about the tenth or eleventh day the work of suppuration seemeth perfected and finifed, but it may be sooner or later by reason of the application of medicines, the condition of the matter, and state of the part: when the matter commeth forth, it must yet use suppurative and mollifying medicines, to manuacre the remains thereof, in the mean while cleansing the ulcers by putting manufactivs into it, as we shall declare in the cure of Carbuncles. But if the tumour seeme to finke in or hide it selfe again, it must be revoked and procured to come forth againe, by applying of Cupping glasses with scarification, and with sharpe medicines, yea, and with Cauteries both actual and potential.

When the Cauteries are applied, it shall be very good to apply a vesicatory a little below it, that there may be some paffage open for the venome while the Eftchat is in falling away. For so they that are troubled with the French Pocks, so long as they have open and flowing ulcers, so long are they void of any paine that is worth the speaking of; which ulcers being closed and cicatrized, they doe presently complain of great paine. If you suspect that the Bubo is more maligne by reason that it is of a greene, or blacke and inflamed colour, as are those that come of a melancholy humour, by adution, turned into a groffe and rebellious melancholy humour, so that by the more copious influxe thereof into the part, there is danger of a gangrene and mortification, then the places about the abscesse must bee armed with repercussives, but not the abscesse it selfe: and this may be the forme of the repercussives: Take of the juice of houfe-leekes, Purslane, Sorrel, Night-shade, of each two ounces; of Vinegar one ounce, the whites of three egges, of oyle of Roues and water. Lilies, of each two ounces and a halfe; flurce them together, and apply it about the Bubo, and renew it often: or Boyle a Pomegranate in vinegar, beat it with Magnenum Raisinum, or Popilium newly made, and apply it as is above said. If these things doe not stop the influxe of other humours, the abscesse it selfe, and the places about it must bee scarified round about, if the part will permit it, that the part excreted of portion of the venome may not stand in danger of the extinction of the proper and natural heat, by the greater quantity and malignity of the humours that flow unto it. In scarifying you must have care of the great vessels, for fear of an irreppugnable fluxe of blood, which in this case is very hard to bee staid or reftitted, both because the part it selfe is greatly inflamed, and the humour very fierce for the expulsion whereof, nature, carrieth for the preseruation of the part and all the body. 

Cecca 2
besides, feemeth to labour and worke. But yet you must suffer so much of the blood & humour to flow out as the patient is able to abide without the loffe of his strength. Moreover, you may spend forth the superfluous portion of the maligancy, with relaxing, mollifying and resolving fomentations: as, Take the roots of Marsh-Mallowes, Lillies and Elicampaine, of each one pound, of Linseeds and Fennegreek, of each one ounce, of Fennell-seeds and Anife-seeds, of each halfe an ounce, of the leaves of Rue, Sage, Rosmarry, of each one handfull, of Chamomill and Mellebore flowers, of each three handfuls, Boyle them all together, and make thereof a decoction for a fomentation; use it with a sponge according to Art. Also after the aforesaid fcarification, wee may put Hens, or Turkiets that lay eggs (which therefore have their fundaments more wide and open, and for the fame purpoe put a little salt into their fundaments) upon the sharpe top of the Bubo, that by flushing their bills at severall times they may draw and suck the venome into their bodies, farre more strongly and better than cupping-glasses, because they are endued with a natural property against poiyon, for they eat and concoct Toads, Efts, and such like virulent beasts: when one hen is killed with the poiyon that the hath drawne into her body, you must apply another, and then the third, fourth, fifth and six within the space of half an houre. There be some that will rather cut them, or else use helphs cut attunber in the midst, and applied warme unto the place, that by the heathe of the creature that is yet scarce dead, portion of the venome may be disipated and exhaled. But if nevertheleff there be any feare of a Gangrene at hand, you must cut the feath with a deeper fcarification, not only avoiding the greater vessells, but also the nerves, for feare of convulion: and after the fcarification and a sufficient flux of bloud, you must wash it with Esyp- tiacum, Trecacle and Mithridate dissolved in fea-water, Aquavit and Vinegar. For such a lotion hath vertue to flay purrefaftion, repell the venome, and prohibit the bloud from concretion: but if the Gangrene cannot be avoided fo, cauteries may be applied to the part especially actual, because they do more effectually repel the force of the poioon, & strengthent the part. Presently after the impression of the hot iron, the efchat must bee cut away even unto the quicke fleth, that the venemous vapours and the humour may have a free paflage forth, for it is not to be looked for that they will come forth of themselves. With these injuncions they are wont to haften the falling away of the Efchat. Take of the mucilage of Marsh-mallowes and Linseeds, of each two ounces, fresh butter or Hogs-greafe one ounce, the yolks of three egges incorporare them together, and make thereof an ointment: butter, Swines greafe, oyle of Roses, with the yolks of egges, performe the felfe fomething. When the Ef- chat is fallen away, we must use digestives. As take of the juice of Plantaine, water-Bertry, and Smallage, of each three ounces, honey of Roses four ounces, Venice Turpentine five ounces, Barly-flowwer three drams, Aloes two drams, oyle of Roses four ounces, Trecacle halfe a dram, make a mundificative according to Art. Or, Take Venice Turpentine foure ounces, Syrupe of dryed Roses and Wormewood, of each one ounce, of the powder of Aloes, Malefic, Myrrhe, Barly-flowwer, of each one dram, of Mithridate halfe an ounce, incorporate them together. This unguent that followeth is very meet for putrefied and corroding ulcers: Take red Piment one ounce, of unquenched Lime, burnt Aloome, Pomegranate pills, of each five drams, of Oliba- num, Galls, of each two drams, of Waxe and Oile as much as shall suffice, make there- of an unguent. This doth mundifie strongly, confume putrefied feath, and dry up vi- rulent humidities that engender Gangrenes. But there is not a more excellent un- guent than Egyptianum encreased in strength, for besides many other vertues that it hath, it doth confume and waft the proud feath, for there is neither oyle nor waxe that goeth into the composition thereof, with which things the vertue of harpe medicines convenient for such ulcers, is delayed, and as it were dulled and hindered from their perfect operation so long as the ulcer is kept open. There have bin many that being diseased with this diseafe, have had much matter & venemous flith come out at their abfcences, so that it seemed sufficient, and they have bin thought wel recovered, yet have they dyed suddenly. In the mean while while these things are in doing, cordial medicines are not to be omitted to strengtheen the heart. And purgations must be renewed at certaine feasions, that nature may be every way unloaded of the burthen of the venenate humors.
Chap. XXXII.

Of the Nature, Causes and Signs of a pestilent Carbuncle.

A pestilent Carbuncle is a small tumour, or rather a maligne pustule, hot and raging, consisting of blood vitiated by the corruption of the proper substance. It often commeth to paffe through the occasion of this untameable malignity, that the Carbuncle cannot be governed or contained within the dominion of nature. In the beginning it is scarce so big as a seed or grain of Millet or a Peafe, sticking firmly unto the part and immovable, so that the skinne cannot be polled from the flefh; but shortly after it increaseth like unto a Bubo unto a round and sharp head, with great heat, pricking paine, as if it were with needles, burning and intolerable, especially a little before night, and while the membe is in conceasing, more than when it is perfectly conceased. In the midst thereof appeareth a bladder puffed up and filled with fanged matter. If you cure this bladder, you shall finde the skinne under it parched, burned and blacke, as if there had bin a burning cole layed there, whereby it seemeth that it took the name of Carbuncle: but the skin which is about the place is like a Rainbow of divers colours, as red, daie, green, purple, livid, and black; but yet always with a shining blackneffe, like unto stone pitch, or like unto the true precious stone which they call a Carbuncle, whereof some also say it tooke the name. Some call it a Naiile, because it infetrith like paine as a naile driven into the flefh. There are many Carbuncles which take their beginning with a crufty ulcer without a pustule, like to the burning of a hot iron; and these are of a blacke colour, they encrease quickly, according to the condition of the matter whereof they are made. All pestilent Carbuncles have a Fever joyned with them, and the grieved part seemeth to be so heave, as if it were covered or pressed with lead tyed hard with a ligature; there commeth mortall suffocations and mortifications, not only to the part, but also to the whole body, by reason (as I thinke) of the oppression of the spirits of the part, and the suffocation of the naturall heare, as we see also in many that have a pestilent Fever and Carbuncle are tumours of a near affinity, so that the one doth scarce come without the other, consisting of one kind of matter, unless that which maketh the Bubo is more grosse and clammy, and that which causeth the Carbuncle more sharpe burning and raging, by reason of its greater subtlety, so that it maketh an Eschar on the place where it is, as we noted before.

Chap. XXXIII.

What Prognosticks may be made in pestilent Baboes and Carbuncles.

Some having the Pestilence have but one Carbuncle, and some more in divers parts of their body; and in many it happeneth that they have the Bubo and Carbuncle before they have any Fever, which giveth better hope of health, if there be no other maligne accident therewith: for it is a signe that nature is the victor, and hath gotten the upper hand, which excluded the pestilent venom before it could come to affaile the heart. But if a Carbuncle and Bubo come after the Fever, it is mortall; for it is a token that the heart is affected, moved and incensed with the furious rage of the venom, whereof presently commeth a feareth heat or burning, and corruption of the humours, sent as it were from the center unto the superficies of the body. It is a good signe when the patientes minde is not troubled from the beginning untill the seventh day, but when the Bubo or Carbuncle sinketh downe againe shortly after that it is risen, it is a mortall signe, especiallie if ill accidents follow it. If after they are brought to suppuration they presently waxe drye without any reason thereof, it is an ill signe. Those Carbuncles that are generated of bloud have a great Eschar than those that are made.
made of choler, because that bloud is of a more groffe consistence, and therefore oc-
cupieth a greater roome in the fleshe: contrariwise, a cholericke humour is more small
in quantity and thiente, and it taketh little roome in the upper part of the fleshe onely,
as you may fee in an Erystetan. And I have feene Carbuncules whose Efchars were
as broad and as large as halfe the backe: also I have feene others, which going up
by the shoulers to the throat, did do ease away the fleshe that was under them, that
the rough artery or wind-pipe might be seen bare, when the Efchar was fallen away:
I had once a Carbuncle which was in the midift of my belly, so that when the Efchar
was fallen away, I might very plainly fee the Pristronam or Rim: & the cicatrice that
remaineth is as broad as my hand: but they doe not spread themselves fo far with-
out the great danger or death of the patient. There are also some Carbuncles which
beginning at the parts under the chin, diuerfe themselves by little & little unto the
patell bones, and so strangle the patient. So in many, the Buboes in the groin arife ab-
ove a great part of the muscles of the Epigastrium. Truly of those abuses that are
so large & great in quantity, & so terrible to be seen, there is great danger of death to 'i
Boniy dead patient, Or at leaft to the grieved part. For after the confulidation, the part re¬
maineth as if it were leprous, which abolisheth the action of the part, as I have feene in
many. Oftentimes also the corruption of the matter is so great, that the fleshe leaveth
the bones bare: but Carbuncles often leaveth the joints and ligaments quite resolved
through the occasion of the mutilation that is foaked & fink in unto them, for they of¬
ten cauff out purrefed & virulent fanguine matter, whereby eating and creeping ulcers
are bred, many blifters & puffles arifing up in the parts round about it; which short¬
ly breaking into one, make a great ulcer. These come very feldome and slowly unto
suffuration, or at leaft to cauf oufable matter, especiaily if they have their original of
choler, because the matter is fooner burned with heat, than if it be fuffurated. There¬
fore then, if they can be brought to fuffuration by no medicines, if the tumour full re¬
maine blacke, if when they are opened nothing at all, or else a very little fharpe mois-
ture doth come forth, they are altogether merrall: and there is scarce one of a thou¬
and who hath these accidents that recovereth health: diuerfed small blifters, com¬
ming of vapours firtred up by the matter that is under the skinne, and are there flay¬
ed and kept from passage forth, doe not neceffarily fore-fhew death in Carbuncles.
But if the part be swolne or puffed up, if it be of a green or black colour, and if it feele
neither pricking nor burning, it is a fame of a mortall Gangrene. *Buboes or Carbun-
cles feldome or never come without a Feaver: but the Feaver is more vehement
genrc when they are in the emunditories, or nervous parts, than when they are in the fleshy
parts, yet it is leffe, and all Symptoms are leffe, and more tolerable in a man that is
strong and of a good temperature: Carbuncles not only affeft the outward, but also
the inward parts, and oftentimes both together. If the hart be vexed in fuch fort
with a Carbuncle that nothing theroe appeareth forth on the superficiall parts, all
hope of life is paft, and thofe dye suddenly, eating, drinking or walking, and not
thinking any thing of death. If the Carbuncle be in the middrife or lungs, they are
foon suffocated: If it be in the brain, the patient becommeth frantick, and fo dyeth.
If it be in the parts appointed for the paffage of the urine, they dye of the suppreffion
of their water, as it happened in the Queen mothers waiting maide at the Caffle of
Rosilion, of whom I spake before. If it be in the stomacke, it inferreth the accidents
that are fhewed in this history following.

While I was Surgeon in the Hospitall of Paris, a young and strong Monke of the
order of St. Victor, being overfeer of the women that kept the fiekke people of that
place, fell into a continual Feaver very suddenly with his tongue blacke, dry, rough,
(by reason of the purrefed and corrupted humours, and the vapours rifting from the
whole body unto that place) and hanging out like unto an hounds, with unqueach¬
able thift, often iowning and desire to vomit. He had convulsions over all his bo¬
dy through the vehemency and malignity of the diseafe, and fo hee dyed the third
day: wherefore thofe that kept the fiekke people in the Hospitall, thought that he had
been poyfoned, for the certaine knowledge whereof the Governors of the Hospit¬
tall commanded his body to be opened.

I therefore calling to mee a Physick and Surgeon, wee found in the bottome of his
Concerning the Plague.

his blaquc a print or impression, as it had been made with an hot Iron or potenti-
all Cauterie, with an Etchar or crufh as broad as ones naile, all the rest of his blo-
mack was greatly contracted and thunke up together, and as it were horny, which
were considering, and especially the Etchar which was deep in the substance of the
blamack, we all said with one voice that he was poynoned with Sublimate or Arse-
nick. But behold while I was fowing up his belly, I perceived many blacke spots
dispers'd diversly throughout the skin: then I asked my company what they thought
of those spots: truely (said I) it seemeth unto me that they are like unto the purple
spots or marks that are in the pestilence. The Physicin and the Chirurgeon deni-
ed it, and said that they were the bitings of fies. But I perfwad'd them to confider
the number of them over all the whole body, and alfo their great depth and defpof-
tion into the fleshe; for when we had thrust needles deep into the fleshe in the midshe
of them, and so cut away the fleshe about the needle, we found the fleshe about the nee-
dle to be blacke: moreover his noftills, nailes and earres were livid, and all the con-
trifution of his body was contrary, and far unlike to the bodies of thoft that died of
other ficknesse or diseases. Alfo it was credibly reported unto us by thofe that kept
him, that his face was fo alter'd a little before he died, that his familiar friends could
hardly know him. Wec perfwad'd by these povfes, revoked our former opinion and
fentenc, and made a certificatc to bee fent unto the Governours and Mufters of the
Hospital, setting out hands and fefales unto it, to certifie them that he die'd of a
peftileint Carbuncle.

Chap. XXXIII.

Of the cure of a peftilent Carbuncle.

Why Empla-
flcs, very hot,
and great draw-
ers are not good
for carbuncles.

By the orenamed signes of a peftilent Carbuncle, and especially by the
bitternesse of the paine, malignity of the venemous matter, and by the
burning Feaver that is therewithall annexed, I think it manifest, that
very hot, emplaffic, and drawing medicines should not bee applie'd to
this kind of tumour; because they prohibit or hinder the exhalation,
or fwathing forth of the venenate malignity; because that by fopp'ng the pores of
the skinne, they increafe and caufe a greater heat in the part than there was before.
Therefore it is better to use resolving medicines, which may affuage heat, and re-
solve the pores of the skine. Therefore firft the place muft be fomented with wa-
ter and oyle mixed together, wherein a little Treacle hath been dissolv'd, leaving thereon
ftupes wet therein: you may alfo use the decoction of Mallowes, the roots
of Lillies, Linfeeds, Figges, with oyle of Hyperion, to make the skine thin, and
to draw forth the matter; and the day following you muft apply the Cataplaffe
following.

Take the leaves of Sorrell and Henbane, roft them under the hot alies; afterwards A Cataplaffe
of a peftilent Carbuncle

beate them with foure yolks of egges, two drams of Treacle, oyle of Lillies, three
ounces, Barly-meale as much as shall fuffice: make thereof a Cataplaffe in the form
of a liquid pulcis, this way affuage heat, and furthereth suppuration, Or, Take the roots
of Marsh-mallowes and Lillies, of each foure ounces, Linfeeds halfe an ounce, boyle
them, beat them, and then straine them through a faire, adding thereto of fresh but-
ter one ounce and an halfe, of Mithridate one drame, of Barly-meale as much as
shall suffice: make thereof a Cataplaffe according to Art: these Cataplaffes that
follow are most effectuall to draw the venemous matter forth, and to make a perfect
suppuration, especially when the fluxe of the matter is not fo great, but that the part
may beare it. Take the roots of white Lillies, Onions, Leaven, of each halfe an ounce;
Mufard-feeds, Hidgeons dung, Sophe, of each one dram; fixe finale in their feds, of
fine Sugar, Treacle and Mithridate, of each halfa dram; beate them all together, and
incorporate them with the yolks of egges, make thereof a Cataplaffe, & apply it warm.
Or, Take the yolkes of fixe egges; of fale powdered one ounce; of oyle of Lillies and
Treacle, of each halfe a dramme; Barly-meale as much as shall suffice: make there-
Concerning the Plague.

The effect of
Scabious against a pellenn. Cataplasme. Take of ordinary Diachylon four ounces; of Unguentum Basilicon two ounces; oyle of Violets half an ounce; make thereof a medicine. Many ancient Professors greatly commend Scabious ground or brayed between two stones, and mixed with old hogs greafe, the yolkes of eggs, and a little salt; for it will cause suppuration in Carbuncles: also an egge mixed with Barly-meale, and oyle of Violets doth mitigate paine and suppurate. A Radish root cut in slices, and fo the slices laid one after one unto a Carbuncle or pellenn tumour, doth mightily draw out the poiyon. The juice of Colts foot doth extinguish the heat of Carbuncles: the herbe called Divils-bit being bruised, worketh the like effect: I have often ufed the medicine following unto the heat of Carbuncles, with very good success; it doth also affwage paine and cause suppuration. Take of the foot scraped from a chimney foure ounces, of common salt two ounces, beate them into small powder, adding thereto the yolkes of two egges, and dirre them well together untill it come to have the confidence of a pulis, and let it bee applied warme unto the Carbuncle. In the beginning the point or head of the Carbuncle muft bee burned, if it bee blacke, by dropping thereinto scalding hot oyle, or Aquafortis: for by such a burning the venome is suffocated as touched by lightening, and the paine is much leaffened, as I have proved oftentimes: neither is it to bee feared that this burning shoulde bee too painfull, for it toucheth nothing but the point of the Carbuncle, which by reason of the Efcar that is there, is voyd of feffe. After this burning, you must goe forward with the former described medicines, untill the Efcar femeeth to feparate from the died round about it, which is a token of the patients recovery, for it signifeth that nature is drong and able to reffit the poiyon. After the fall of the Efcar, you must ufe gentle mundificatives, as thofe which we have prerscribed in a pellenn Bubo, not omitting sometimes the ufe of supplicative and mollifying medicines, that while the grode matter is cleansed, that which is as yet crude may bee brought to suppuration; for then the indication is twofold, the one to suppurate that indication, which remaines as yet crude and raw in the part, and the other to cleansed that which remains concocted and perfecfly diggled in the ulcer.

Chap. XXXV.

Of the itching and inflammation happening in pellenn ulcers, and how to cicatrize them.

Why the adjacuent parts are troubled with itching.

A fermentation for this itch.

Why defcended ulcers are hard to be cicatrized.

Two sorts of Epulotticks, that is, such things as have a faculty to cicatrize ulcers by
Concerning the Plague.

by condensing and hardening the surface of the flesh, of these there are two kinds; for some without much biting bind and dry, such are pomegranate pills, oak barren, tartar, litharge, burnt bones, scabs, gums, fish. Elixirs, antimony, alum, resin, burnt and washed helms of oats, iron nine times washed, and many metallic things. Others are next to these, by which proud flesh is confirmed, but such must be sparingly used: of this kind is vitriol, burnt albumen, which excelleth other Euporotics, by reason of the excellent drying and affluting faculty consolidating the flesh, which by being moistened by an excrementitious humour, grows good later. For that the scar which is made, is commonly unprofitably in this kind of ulcers, as red, livid, black, swollen, rough, by reason of the great adustion given against the part, as by a burning coal, therefore I have thought good here to set down some means by which this deformity may be corrected or amended. If the scar be too big or high, it shall be planed by making convenient ligature and tight binding to the part a plate of lead rubbed over with quicksilver; but you may whiten it by anointing it with Lime nine times washed (that so it may be more gentle and lose the acrimony) and incorporate with oil of roses. Some take two pound of Tartar or Argole, burnt it, and then powder it, put it in a cloth, and so let it hang in a moist vault or cellar, and set a vessel under it to receive the dropping liquor, which is good to be rubbed for a good space, upon the scar. The same faculty is thought to be in that moist urine of eggs, which sweats through the flesh, whilst they are roasted at the coals, as also in curd, coriander, and iron newly made. The three following compositions are much approved. To remove swellings, and first of sweats and vomiting.

He pestilence malignity is not only evacuated and sent forth by the eruption of pustules and spots, but also by sweat, vomit, bleeding at nose, at the hemorrhoids, by the course, a flux of the belly, and other ways, so that nature by every kind of excretion may be freed from the deadly poison, especially that which is not as yet arrived at the heart. But chief respect must be had to the inclination of nature, and we must attend what way it chiefly aimes at, and what kind of excretion it affects. Yet such evacuations are not always critical, but nature, usually symptomatical, for that oft-times nature is so irritated by the unaccountable malignity of the matter, that it can no way digest it, but is forced by any means to send it away crude as it is. Wherefore if nature may seem by the most sensible of the skin, the suppression of urine, & other signs to affect a crisis and excretion by sweat, you then shall procure it by the formerly mentioned means. It is delivered by the Ancients that all sweats in acute diseases are fatal, which happen upon a critical day, which are univerfall and hot, and signified before the critical day. But in this rapid and deadly disease of the Plague, we must not expect a crisis, but as soon as we can, and by what means we may to free nature from so dire and potent an enemy.

Chap. XXXVI. Of sundry kinds of Evacuations, and first of sweating and vomiting.
But oft times the tough and groffe excrementitious humours may bee purged by vomit, which could not be evacuated by strong purges. Therefore also by this manner of excretion may we hope for the exclusion of the pestilent venome, if there bee nothing which may hinder; and nature by frequent nauseous vomit may seem to affect this way: the endeavour thereof shall be helped by giving some half a pint of warm water to be drunk with a quart of common oyle, an ounce of vinegar, and a little juice of raddifh, after the taking of the potion it is fit to thrust into the throat a goose quill dipped in the same oile, or else a branch of Rosemary, or else by thrusting in the fingers so to procure vomit; also a potion of eight ounces of the mucilaginous water of the decoction of Line feeds will procure vomit. Or else, Rx. rad. rap., in toaso. sed. vel sem. eugas, & sem. antripicic, an. 3 ii. bullans in aqua com. quod sufficit pro defcribenda diis ove oxym. & aet. an. 38, exsucibatur posio larga & tepida. Or else, Rx. oxym. Cal. 3 vi. ol. com. 5 ii. paretur posio tepida. But nature must not be forc'd, unless of its own accord it undertake this motion; for forced and violent vomiting, distends the nervous fibers of the ventricle, depsects the strength, breaks the vessels of the Lungs, whereby proceeds a deadly spitting of blood. Wherefore if the stomack shall trouble it selfe with a vain and hurtfull desire to vomit, it shall rather be strengthened with bagges of roses, worm wood and Saunders, using inwardly the juice of Quinces and Berberries, and broths made for the same purpose.

CHAP. XXXVII.

Of spitting, Salivation, Sneezing, Belching, Hiccketting, and making of Water.

Hat long evacuations may be made by spitting and salivation, you may learne by the example of such as have a plurifie, for the matter of the plurifie being turned into pus, the purulent matter fuch up by the rare and spongy substance of the lungs, and thence drawn into the Afera Arteria, is lastly cast out by the mouth.

There is none ignorant, how much such as have the Lues venerea are helped by faffication and spitting. But these shall be procured by Masticatories of the roots of Treas, Pellitory of Spaine, Mattick, and the like, the mucilage of Line feeds held in the mouth will work the same effect.

That such as have a moist braine may expell their superfluous humours by sneezing and blowing their nofes, the brains by the strength of the expulsive faculty, being stirred up to the exclusion of that which is harmful, may be knowne by the example of old people and children which are daily purged by their nofes; the braine is stirred up to both kindes of excretion from causes either internall or externall: from the internall, as by a phlegmaticke and vaporous matter, which contained in the braine, offendeth it externally, as by receiving the beams of the sunne in the noftrils, or by tickling them with a feather, or blowing into them the powder of Hellebore, Euphorbium, Pyrethrum, Mustard feed, and the like stimulant medicines. For then the braine is frainted by its owne expulsive faculty, to the ejection of that which is troublous unto it. Sneezing breaketh forth with noise, for that the matter passes through strait passages, to wit, by the straining passages of the Ostribrunum, which is fatet at the roots of the noftrills. It is not fit to cause sneezing in a body very plethoric, unleffe you have first premised general medicines, lest the humours should bee more powerfully drawne into the braine, and so cause an Apoplexie, Vertige, or the like symptomes.

By belching the flatulencies contained in the ventricle, being the offspring of crudity, or flatulent meats, are expelled, these by their taste and smell, pleasing, sickeninge, sweete, bitter or tart, shew the condition and kind of crudity of the humours from whence they are rais'd: now vomiting freeth the stomack of crudities, but the distemper must be corrected by contraries, as altering things to be prescribed by the Phyfitian.

Hicke-
Hickeiting is a contract and extension of the nervous fibers of the stomack, to call forth such things as are too communaciously in the coats thereof; yet repletion only is not the cause thereof, but sometimes inanition also; for oftentimes a putrid vapour, from some other place, breaking into the stomack, as from a pestil. Eulor, or Carbuncle, also all acide and acride things, because they pricke, vellite, & provoke the tunicles of the ventricle, as vinegar, spiced things, and the like; often & communacious hickeiting after purging, a wound or vomiting, is ill; but if a convulsion presently happen thereon, it is deadly.

Several remedies must be used according to the variety of the causes: for repletion helps that hicketing that proceeds from inanition, & evacuation that which happens by repletion: that which proceeds from a putrid and venemous vapour is helped by Treacle and Antidotes; that which is occasioned by acide and acrid things, is cured by the use of groffe, fatty, and cold things.

Now the whole body is oft times purged by urine, and by this way the favourish matter is chiefly and properly accustomed to be evacuated: not a few, being troubled with the putrid vapours, when they could not be brought to salivation by urine, have bin cured by the large evacuation of urine caused by diuretick medicines. Diureticks wherewithal you may move urine, are formerly described in treating of the stone. But we must abstain from more acride diureicks, especially when inflammation is in the bladder: for otherwise the noxious humours are lent to the affected part, whence there is danger of a deadly Gangrene. Therefore then it is better to use diversion by sweat.

CHAP. XXXVIII.

Of the Menstrual and Hemorrhoidal purgations.

Or only reason, but also manifold experience inducethus to beeleeved that women, by the benefit of their menstrual purgation, cleape and are freed from great, pestilent, and absolutely deadly diseases; wherefore it must bee procured by remedies, both inwardly taken, and outwardly applied: these may be taken inwardly with good success, Cinamoa, the bark of the root of a Mulberry, Saffron, Agricke, Nutmeg, Savine, Daghridium, and divers others. But if the affect require more vehement medicines, the roots of Thymmel, Animony, Cantharides (taken in small quantity) move the courses most powerfully; frictions and ligatures made upon the thighs and legs conduct hereunto, as also cupping in the inner and middle part of the thighs, the opening of the vein Saphena, plaisters applied to the orifice of the neck of the womb, pellaries, nodula's, glysters, baths, fomentations made of oderiferous things, which by the fragrancy or rather by their heat, may attenuate & cut groffe humors, open the obstructed orifices of the veins, fuch are the roots of Marsh-mallowes, Orris, Parsely, Fennell, Chervile, Mugwort, Mints, Penny-royall, Savory, Rosermay, Rue, Time, Sage, Bay berries, Broome, Ginger, Cloves, Pepper, Nutmegs, and the like; the vapour of the boiling whereof, let the woman, sitting upon a perforated seat, receive by a funnel into the necke of her wombe, covering herelfe warme on all sides, that nothing may otherwise breath forth. Of the fame things may bee made balnes, as well generall as particular. Alfo pellaries are good made after this manner. R. sherias, misthid. an. 5 S. caslor, gom. ammoniac. an. 5, mufc cum bombece in fune mercu- vialis simile, fital pellarium, Or elfe, R. rad. petrecel. & fancing. Sub concoctus equelepe, inde contusas cum pul. haphysag, pyreth. croc. et olio illorum, to make a pellary in the forme of a suppository or nodula. Or, R. pulo, myrbr. & aceso, an. 3 f. fol. fabin. nig- gel. artemis. an. 3 ii. rad. helium, migr. 5 i. croci, 5 i. cum fucco mercur. & melle commun. make a pellary in Cotton. This which followes is more effectuall. R. jacobitus, unisbr. an. 5 ii. myrbr. euphorb. caslor. salis. disad. terebinth. galban. spheris. an. 5 i.
Concerning the Plague.

make a pestlary according to art; let a thread hang out of the one end of the pestlaries, that you may easily draw them forth as you please. But if this menstruous flux once provoked, flow too immoderately, it must be stopped by using meats of groser and more viscid juice, by opening a vein in the arm, application of cupping glasses under the dugs, frictions and ligations of the upper parts, as the arms, putting up of pestlaries, application of refrigerating and attritious plasters, to the lower belly, share and loins, laying the woman in a convenient place, and not upon a feather-bed.

This following injection stoppeth the blood flowing out of the womb, R. aqua plant. & subor, an. ib, nux cumque, gallar, immatur, an. 3, ii, berber, famach, balans, virirol, rom. alun, roch. an. 5, ii, brilfin omnia, simul & fist decattio: of this make injection into the womb. In the performance of all these things, I would have the Surgeon depend upon the advice of a Physitian, as the occasion and place shall permit.

But if nature endeavour to free it seife of the pestilient matter by the hemorrho- rides, you may provoke them by frictions and strong ligatures in the lower parts, as if the thighs or legs were broken, by ventoses applied with great flame to the inner side of the thigh, by application of hot and attractive things to the fundament, such as are fomentations, emplasters, unguents, such as is usually made of an onion rosted under the embers, and incorporated with Treacle, and a little oile of Rue; after the hemorrhoid veins, by these means, come to flow themselves, they shall be rubbed with rough linnen cloths, or fig leaves, or a raw onion, or an oxegall mixt with some powder of Cologuimida; lastly you may apply horse-leaches, or you may open them with a Lancet, if they hang much forth of the fundament, and be swolne with much blood. But if they flow too immoderately, they may be stayed by the same means as the courses.

Chap. XXXIX.

Of procuring evacuation by stool, or a fluxe of the belly.

Nature, often times, both by it selfe, of its owne accord, as also helped by laxative and purging medicines, casts into the belly and guts, as into the finke of the body, the whole matter of a pestilent disease, whence are caused Diarrhazs, Lienteries, and Dyfenteries you may distinguish these kinds of fluxes of the belly, by the evacuated excrements. For if they be thinne and sincere, that is, retaine the nature of one, and that a simple humour, as of choler, melancholy or phlegme, if they be cast forth in a great quantity, without the ulceration or excoriation of the guts, vehement or fretting paine, then it is a Diarrhoe, which some also call fluxus humoralis. It is called a Lienteria, when as by the resolved retentive faculty of the stomacke and guts cause of ill humours, either there collected, or flowing from some other place, or by a cold & moist distemper, the meat is cast forth crude, & almost as it was taken. A Dysenteria is when as many and different things, and oft times mixt with blood, are cast forth with pain, gripings, and an ulcer of the guts, caused by acide choler, fretting infunder the coats of the vesseles.

But if in any kind of disease, certainly in a pestilent one, fluxes of the belly happen immoderate in quantity, and horrible in the quality of their contents, as liquid, viscid, frothy, as from melted grease, yellow, red, purple, greene, ah-coloured, blacke, and exceeding tinking. The caufe is various, and many sorts of ill humours, which taken hold of by the pestilential malignity, turne into divers species, differing in their whole kinde both from their particular, as also from nature in generall, by reason of the corruption of their proper substanee, whole inseparable ligie is finche, which is oft times accompanied by worms.

In the camp at Amiens a pestilent Dyfentery was over all the Campe, in this the strongest Soldiers purged forth meere blood: I disjecting some of their dead bodies
Concerning the Plague.

Concerning the Plague.

Concerning the Plague.

Concerning the Plague.

Concerning the Plague.

Concerning the Plague.

Concerning the Plague.

Concerning the Plague.
Concerning the Plague.

ther roasted than boiled. His drinke shall be chalibate water of the docodion of a fource pomegranate beaten, or of the docodion of a quince, medlars, cervice, bean flowe, and hone of roses made up with calibeate water.

Anodyne, abftergent, astringent, consolidating and nourishing glysters shall bee injected. These following retund the acrimony of humours, and affygewe paine. R. fol. lucus, hyos, acetos, portul. an. m. i. flor. violar. & nennph. an. p. i. fist decocito ad lb. i. in colatura dissovoe cafis daffdul. 5 vi. olei rofat. & nennph. an. 3 i. b. fist cleyfwer. Or else, R. rof. rub. bord. mind. sem. plantan. an. p. i. fist decocito, in colatura adde olei rof. 2 ii. vitel. vovig. ii. fist cllyfwer. Or, R. decocitioniis capi, cur. wittellin. & capr. ver. vinsin. una vmpelle, lb. ii. in qua concoctant sui. violar. malv. mercar. plantag. an. m. bord. mind. 3 i. quatern. fem. frigid. major. an. 3 ii. in colatura lb. 8, dissovoe cas. recent. extract. 3 i. ol. vovig. 3 iv. wittellor. over. ii. sub. rub. 5 i. fist cllyfwer. Or, R. flor. chamam. melit. aneth. an. v. rad. bisnatural. 3 i. fist decocito in talle, colatura adde meucag. sen. lin. fumagr. extract. in aqua malv. 2 ii. sacchar. rub. 5 i. olei cham. & aneth. an. 3 ii. vitel. wittellor. over. ii. fist cllyfwer.

Such glysters must be long kept that they may more readily mitigate paine. When shavings of the guts appear in the stooles, it is an argument that there is an ulcer in the guts; therefore then we must use deterrent and consolidating glysters, as this which follows.

A very astringent glyster. R. bord. integ. p. ii. ref. rub. flor. chamam. plantag. api. an. p. i. fist decocito, in colatura dissovoe melis rofat. & syr. de ahijth. an. 2 ii. vitel. over. ii. This following glyster, consolidateth. R. fungi plantag. centis. & portulac. an 5 ii. bol. armen. fang. dracan. an. 3 i. fobi bismo dissovo. 2 iii. fist cllyfwer. Alfo cows milke boyled with plantaine and mixed with fyrupe of roses is an excellent medicine for the ulcerated guts.

A nourishing glyster. R. caud. equin. plant. polygon. an. m. i. fist decocito in lafel uflisato ad quart. iii. & in colatura adde bals arm. terra sigil. fang. dracan. an. 3 ii. albumina doer. over. fist cllyfwer. Or else, R. fac. plant. arneglos. centis. & portulac. recent. adde por. bals arm. terra sigil. fang. dracan. an. 3 i. ol. myrthini. & ref. an. 3 ii. fist cllyfwer.

If pure blood flow forth of the guts, I could wish you to use stronger afrificatives.

To which purpose I much commend a decoction of pomegranate pills, of cypresse nuts, red rose leaves, sumach, alone, and vitrioll made with smiches water, and so made into glysters, without any oyle. It will be good with the same decoction to foam the fundament, perinasm. and the whole belly.

Astringent glysters ought not to bee used before that the noxious humours bee drawn away and purged by burning medicines, otherwise by the stuffpage hereof, the body may chance to be oppreseed.

If the patient bee so weake that he cannot take or swalowe any thing by mouth, nutritive glysters shall be given him. R. decocitioonis capi pinguis. & curvis vinitinis. cost. cum aceta. bungofo. horagines. pimpinella. lalcula. 5 x. vel xii. in quibus dissovoe vitellos ouvarum. sum iii. sacchari rofat. & aqua vita. an. 5 i. butyr presentis non salis, 3 ii. fist cllyfwer.
Concerning the Plague.

CHAP. XLI.

Of evacuation by insensible transpiration.

He pestilent malignity as it is oft times drawn by the pores, by transpiration into the body, so oft times it is lent forth invisibly the same way againe. For our native heat that is never idle in us, differs the noxious humours attenuated into vapours and aire through the unpercievable breathing places of the skin. An argument hereof is, we see that the tumours and abscesses against nature, even when they are come to suppuration, are oft times resolved and diffused by the only efficacy of nature, and heat, without any helpe of art. Therefore there is no doubt, but that nature being prevalent, may free itself from the pestilent malignity by transpiration, some Abscess, Bubo or Carbuncle being come forth, and some mater collected in some certaine part of the body. For when as nature and the native heat are powerfull and strong, nothing is impossible to it, especially when as the passages are also in like manner free and open.

CHAP. XLII.

How to cure Infants and Children taken with the Plague.

If that happen that suckling or weaned children be infected with the pestilence, they must bee cured after another order than is yet described. The Nurse of the sucking child must governe her selfe so in diet and the use of medicines, as if she were infected with the pestilence her selfe. Her diet consisteth in the use of the six things not naturall. Therefore let it be moderate, for the fruit or profit of that moderation in diet cannot chuse but come unto the Nurses milke, and to unto the infant who liveth onely by the milke. And the infant it selfe must keep the same diet as neere as he can in sleep, waking, and expulsion, or avoiding of superfluous humours and excrements of the body. Let the Nurse bee fed with those things that mitigate the violence of the feaverish heat: as cooling brothes, cooling herbs, and meats of a moderate temperature: shee must wholly abstaine from wine, and anoint her nipples, as often as shee giveth the infant sucke, with water, or juice of forrell tempered with sugar of roses. But the infants heart must bee fortified against the violence of the increasung venome, by giving it one scruple of treacle in the Nurses milke, the broth of a pullet, or some other cordiall water. It is also very necessary to anoint the region of the heart, the emunditories, and both the wreists with the same medicine: neither were it unprofitable to smell often unto Treacle dissolved in rose water, vinegar of roses and a little aqua vitae, that so nature may bee strengthened against the malignity of the venome. When the children are weaned, and somewhat well growne, they may take medicines by the mouth, for when they are able to conceale and turne into blood meats that are more grosse and firm than milk, they may easely achat a gentle medicine. Therefore a potion must be prepared for them of twelve graines of treacle, dissolv'd with a little of the fyrup of succory in some cordiall water, or the broth of a capon: unleffe that any had rather give it with conserve of roses, in forme of abole: but treacle must bee given to children in very small quantity, for if it be taken in any large quantity, there is great danger lest that by inflaming the humours, it inferre a feaver. Furthermore broth may be prepared to be taken often, made of a capon seasoned with forrell, lettuce, purslane and cooling feedes, adding thereto hole armenick and terras glittatas, of each one ounce, being tyed in a rag, and sometimes pressed out from the decoction. For hole armenick, whether it be by its marvellous faculty of drying, or by some hidden property, hath this vertue, that being drunken (according as Galen witnesseth) it cureth those that are infected with the pestilence, if so be that they may bee cured by phyfick: so that those that cannot be cured with hole armenick, cannot bee pre-
Concerning the Plague.

The benefit of sweating.

The bodies of children are warme, moist and vaporous, they are easiely delivered of some portion of the venenate matter through the pores of the skin by provoking sweat, with a decoction of partly seeds, prunes, figs, and the roots of forrell, with a little of the powder of Harts horne, or Iwory. But if the sweat may be more abundant and copious, apply sponges dipped and prefed in the hot decoction of fage, rosemery, lavender, bayes, chamomil, meliorce and mallowes, or else wine bladders halfe filled with the same decoction, to the same holes, and to the groines. In the time that they sweat, let their faces be fanned to cool them. Also let a nodule of Treacle, dissolved in vinegar and water of Roses, be applied to the nostrils, but alwaies use a moderation in sweating, because children are of a substance that is easie to be dissipated and resolved; so that oftentimes although they do not sweat, yet they feel the commodities of sweating, the matter of the venome being dissipated by the force of the heat through the pores of the skin. But in the sweating while the face is fanned, and sweat & cordial things applied to the nostrils, nature must bee recreated and strengthened, which otherwise would be debilitated through sweating, that it may bee better able to expell the venome. After that the sweat is wiped away, it is very profitable to take a potion of conserve of Roses, with the powder of Harts horne or of Iwory dissolved in the waters of Buglofe and Sorrel, the better to coole and defend the heart. If there appeare any tumour under the arme holes or in the groine, let it be brought to maturation with a mollifying, relaxing, drawing, and then with a suppurative fomentation, or Cataplafia; alwaies using and handling it as gently as you may, considering the tender age of the infant. If you have need to purge the patient, the purgation following may be prescribed with great profit. Take of Rubarbe in powder one dram, infuse it in the water of Cardua Benedictus, with one scruple of Cinamon, in the straining dissolve two drams of Disacholyca, of syrue of Roses laxative three drams; make thereof a small potion. This is the cure of the Pestilence and of the pestilent Feaver, as far as I could learn from the most learned Physicians, and have observed myself by manifold experience by the grace and permissjon of God; of whom alone, as the Author of all good things that mortall men in joy, the true and certaine prefervatives against the pestilence are to be desired and hoped for.

The End of the Twentie second Booke.
OF THE
MEANES AND
MANNER TO REPAIRE
OR SUPPLY THE NATURALL
or accidentall defects or wants
in mans body.

THE TWENTIE THIRRD BOOKE.

CHAP. I.

How the lofe of the natural or true eye may bee covered,
hidden or shadowed.

Having at large treated in the former Bookes of tumours, wounds;
ulcers, fractures and luxations, by what meanes things dissolved
and dislocated might bee united, things united separated, and su-
perfluities consumed or abated: Now it remaines that we speak
of the fourth office or duty of the Chirurgian, which is to supply
or reparing those things that are wanting by nature, through the
default of the first conformation, or afterwards by some mis-
chance. Therefore, if that through any mischance, as by an in-
flammation, any mans eye happen to be broken or put out, & the humors spoilt or wa-
sted, or if it be strucken out of his place or cavity wherein it was naturally placed, by
any violent stroke, or if it be removed by reason of a consumption of the proper
substance, then there is no hope to restore the sight or function of the eye, yet you
may cover the deformity of the eye so lost (which is all you can doe in such a case)
by this meanes: If that when you have perfectly cured and healed the ulcer, you may
put another eye artificially made of gold or silver, counterfeited and enamelled, so
that it may seem to have the brightnesse, or gemme decencie of the natural eye, in-
to the place of the eye that is so lost.

Dddd 3

The
A supplement of the defects in Mans body. L1B. 23.

The forms of eyes artificially made of gold or silver, polished and enamelled, showing both the inner and outer side.

But if the patient be unwilling, or by reason of some other means cannot wear this eye so prepared, in his head, you may make another on this wise. You must have atring or war, of iron bowed or crooked, like unto women's ear-wars, made to bind the head harder or looser as it pleaseth the patient, from the lower part of the head behind the ear, unto the greater corner of the eye; this rod or war must be covered with silke, and it must also be somewhat broad at both the ends, lest that the sharpness thereof should pierce or prickle any part that it commeth unto. But that end wither with the empty hollowneffe must be covered, ought to bee broader than the other, and covered with a thin piece of leather, that thereon the colours of the eye that is lost may be shadowed or counterfeited. Here followeth the figure of portraiture of such a string or war.

The form of an iron war wherein the deformity of an eye that is lost may be shadowed or covered.
CHAP. II.

By what means a part of the nose that is cut off, may be restored, or how in stead of the nose that is cut off, another counterfeit nose may be furnished or placed in the stead.

When the whole nose is cut off from the face, or portion of the nostrils from the nose, it cannot bee restored or joyned againe: for it is not in men as it is in plants. For plants have a weake and feeble heat, and furthermore it is equally dispersed into all the substance of the plant or tree, neither is it caste to be consumed or wasted, for when the boughes or branches of trees are broken, torn, or cut away, they live nevertheless, and will grow againe when they are set or grafted; neither is there any estate for the heart rightly prepared in them from whence the heat must necessarily run, and dispere it selfe continually into all the parts thereof. But contrariwise, the separated parts of more perfect living creatures, as of men, are incontinent deprifed of life, because they have their nourishment, life, sense, and whole subsistence not of themselves, by faculties flowing or comming unto them from some other parts, neither are they governed by their own heat as plants, but by a borrowed heat, so that above or beside the natural faculty of the liver, another vital faculty commeth unto it from the heart.

Wherefore in stead of the nose cut away or confum'd, it is requisite to substitute another made by Art, because that nature cannot supply that defect: this nose fo artificially made, must be of gold, silver, paper or linnen clothes glued together, it must bee so coloured, counterfeited and made both of fation, figure and bignesse, that it may as aptly as is possible, resemble the natural nose: it must be bound or stayed with little thredds or laces unto the hinder part of the head or the hatte. Also if there be any portion of the upper lip cut off with the nose, you may shadow it with annexing some such thing that is wanting unto the nose, and cover it with the hair on his upper lippe, that he may not want any thing that may adorn or beautifie the face. Therefore I have thought it necessary to set downe the figure or forme of both these kindes.

The forme of a nose artificially made, both alone by it selfe, and also with the upper lip covered as it were with the hair of the beard.

There was a Surgeon of Italy of late yeares which would restore or repair the anusse nose portion of the nose that was cut away after this manner. He first scarified the callous edges of the maimed nose round about, as is usually done in the cure of hare-lips.
lips: then he made a gash or cavity in the muscle of the arm, which is called Biceps, as large as the greatest of the portion of the nose which was cut away did require. And into this gash or cavity so made, he would put that part of the nose so wounded, & bind the patient's head to his arm, as if it were to a post, so that it might remain firm, stable and immovable, and not leave or bow any way, and about forty days after, or at that time when he judged the flesh of the nose was perfectly agglutinated with the flesh of the arm, he cut out as much of the flesh of the arm, cleaving fast unto the nose, as was sufficient to supply the defect of that which was lost, & then he would make it even, & bring it, as by licking, to the fashion & form of a nose, as near as art would permit, & in the mean while he did feed his patient with pomegranates, gelatins, & all such things as were easy to be swallowed & digested. And he did this work of curing the place where the flesh was to cut out, only with certain balmes & agglutinative liquors. A younger brother of the family of St. John, being weary of a silver nose, which being artificially made, he had worn in the place of his nose that was cut off, went to this Chirurgeon into Italy, & by the means of the fore-named practice he recovered a nose of flesh again, to the great admiration of all those that knew him before. This thing truly is possible to be done, but it is very difficult both to the patient suffering, and also to the Chirurgeon working. For that the flesh that is taken out of the arm, is not of the like temperature as the flesh of the nose is, also the holes of the restored nose cannot be made as they were before.

CHAP. III.

Of the Placing of teeth artificially made in stead of those that are lost or wanting.

T oftentimes happeneth that the fore teeth are moved, broken or stricken out of their places by some violent blow, which causeth deformity of the mouth, and hinders plain pronunciation. Therefore when the jaw is restored (if it were luxated or fractured) and the gums brought unto their former hardnesse, other teeth artificially made of bone or Ivory may bee put in the place of those that are wanting, and they must bee joined one fast unto another, and also so fastened unto the natural teeth adjoining, that are whole; and this must chiefly bee done with a thread of gold or silver, or for want of either, with a common thread of flake or flax, as it is declared at large by Hippocrates, and also described in this figure following.

The figure of teeth bound or fastened together.
Any times it happeneth that a portion or part of the bone of the palle, being broken with the shot of a gun, or corroded by the virulence of the Luces venereae, falls away, which makes the patients to whom this happeneth, that they cannot pronounce their words distinctly, but obscurely and muffling: therefore I have thought it a thing worthy the labour to shew the means how it may be helped by art. It must be done by filling the cavity of the palle with a plate of gold or silver a little bigger than the cavity itself is. But it must be as thick as a French crown, and made like unto a dish in figure, and on the upper side, which shall be towards the brain, a little sponge must be fastened, which, when it is moistened with the moisture distilling from the brain, will become more swollen and puffed up, so that it will fill the concavity of the palle, that the artificial palle cannot fall down, but stand fast and firm, as if it stood on its self. This is the true figure of those instruments, whose certain use I have observed not by once or twice, but by manifold trial in the battles fought beyond the Alpes.

The figure of plates to fill or supply the defects of the Palle.

The figure of another plate for the Palle, on whose upper side there is a button which may be turned when it is put into the place, with a small Rovins bill, like this whose figure is here expressed.

CHAP. V.

How to help such as cannot speak by reason of the loss of some part of the tongue.

Hence gave place and authority to this remedy, as to many other in our art. A certaine man dwelling in a village named Tuyes le Chasteau, being some twenty four miles from Bourges, had a great piece of his tongue cut off, by which occasion hee remained dumbe some three yeares. It happened...
on a time that as he was in the fields with reapers, hee drinking in a wooodden dish, was tickled by some of the flanders by, not enduring the tickling, hee suddenly broke out into articulate and intelligible words. He himselfe wondering thereat, and delighted with the novelty of the thing, as a miracle, put the same dish to his mouth just in the same manner as before, and then he spake so plainly and articulate, that he might be understood by them all. Wherefore a long time following he alwaies carried this dish in his bosome, to utter his mind, untill at length necessity, the mis’tris of arts and giver of wit, inducing him, hee caused a wooodden instrument to bee nearly cut and made for him, like this which is here delineated, which he alwaies carryed hanging at his neck, as the onely interpreter of his mind, and the key of his speech.

An instrument made to supply the defect of the speech when the tongue is cut off.

The use of the Instrument is this.

A. sheweth the upper part of it which was of the thicknesse of a nine-pence, which he did so hold betweene his cutting teeth, that it could not come out of his mouth, nor bee seene. B. sheweth the lower part, as thick as a sixe-pence, which he did put hard to the rest of his tongue, close to the membranous ligament which is under the tongue. That place which is depreft and somewhat hollowed, marked with the letter C. is the inner part of the instrument. D. sheweth the outside of the same. Hee hanged it about his necke with the string that is tyed thereto.

Textor the Physicinian of Bourges shewed me this instrument; and I myselfe made tryall thereof on a young man whose tongne was cut off, and it succeeded well, and took very good effect. And I think other Surgeons in such cases may doe the like.

Chap. VI.

Of covering or repairing certain defects or defaults in the face.

It oftentimes happeneth, that the face is deformed by the sudden flathing of Gunpowder, or by a pestilent Carbuncle, so that one cannot behold it without great horror. Such persons must be so trimmed and order’d, that they may come in seemely manner into the company of others. The lips if they bee either cut off with a sword, or deformed with the erosion or eating of a pestilent Carbuncle or ulcerated Cancer, so that the teeth may bee set to lyce barre with great deformity. If the loffe or consumption of the lip bee not very great, it may be repaired by that way which we have prescribed in the cure of bare lips, or of an ulcerated Cancer. But if it be great, then must there be a lip of gold made for it, so shadowed and counterfeited, that it may not be much unlike in colour to the natural lip, and it must be fastened and tyed to the hat or cap that the patient weareth on his head, that so it may remaine stable and firme.
Chap. VII.

Of the defects of the ears.

Such as want their ears, either naturally or by misfortune, as through a wound, carbuncle, cancer, or the biting of wild beasts: if so be that the ear be not wholly wanting, wasted, consumed, or torn away, but that some portion thereof doth yet remaine, then muft it not be neglected, but muft have many holes made therein with a bodkin, and after that the holes are cicatrized, let some convenient thing made like unto the piece of the ear that is lost, bee tyed or fastned unto it by these holes.

But if the ear be wholly wanting, another muft bee made of paper artificially glewed together, or else of leather, and fo fastened with laces, from the toppe or hinder part of the head, that it may stand in the appointed place, and to the haire muft be permitted to grow long, or else some cap wore under the hat which may hide or cover the deformity, unless you had rather have it to bee shadowed and counterfeited by some Painter, that thereby it may resembe the colour of a natural ear, and so retain it in the place where it ought to stand, with a rod or wiar comming from the toppe or hinder part of the head, as wee have spoken before in the losse of the eye, and the forme thereof is this.

Chap. VIII.

Of amending the deformity of such as are crooke-bacis.

He bodies of many, especially young maids or girles (by reaon that they are more moist and tender than the bodies of boyes) are made crooked in proccede of time, especially by the wrenching aside and crookednefe of the backe-bone; it hath many causes, that is to say, in the first conformation in the wombe, and afterwards by misfortune, as a fall, bruife, or any such like accident; but especially by the unhandsome and undecent sittution of their bodies, when they are young and tender, either in carrying, sitting or standing (and especially when they are taught to goe too soone) saluting, writing, or in doing any such like thing.

In the meanwhil, that I may not omit the occasion of crookednefe, that hap- pens seldome to the country people, but is much incident to the inhabitants of great townes and cities, which is by reaon of the straitnefe and narrownefe of the gar-
ments that are worn by them, which is occasioned by the folly of mothers, who while they cover to have their young daughters bodies so small in the middle as may be possible, pluck and draw their bones awry, and make them crooked. For the ligaments of the back-bone being very tender, soft and moist at that age, cannot stay it strait, and strongly, but being pliant, easily permits the spondels to slippe awry inwards, outwards, or sidewise, as they are thrust or forced.

The remedy for this deformity is to have breast-plates of iron, full of holes all over them, whereby they may be lighter to wear, and they must be so lined with bomanet, that they may hurt no place of the body. Every three months new plates must be made for those that are not yet arrived at their full growth, for otherwise with the daily afflux of more matter, they would become worse. But these plates will do them small good that are already at their full growth.

The form of an iron Breast-plate, to amend the crookedness of the Body.

CHAP. IX.

How to relieve such as have their urine flow from them against their wills, and such as want their yards.

In those that have the strangury, of what cause soever that malady commeth, the urine passeth from them by drops, against their wills and consent. This accident is very grievous and troublesome, especially to men that travaile: and for their sakes only I have invented the instrument here beneath described. It is made like unto a close breech or hose, must be of latine, to contain some four ounces; it must be put into the patients hose, between his thighs, unto which it must be tied with a point by the ring. Into the open and hollow mouth of this instrument, which is noted with the letter C, the patient must put his yard, & into this concavity or hollow, goeth a stay somewhat deep, it is marked with the letter B, and made or placed there, both to hold or bear the end of the yard, and also by his close joint that it must have unto the vessell, to stay the urine from going back againe, when it is once in. But the letters A, and D, doe signify all the instrument, that the former part, and this the hinder part thereof. Now this is the shape thereof.
Those that have their yards cut off close to their bellies, are greatly troubled in making of urine, so that they are constrained to sit down like women, for their ease. I have devised this pipe or conduit, having an hole through it as big as one's finger, which may be made of wood, or rather of latin.

A. and C. shew the bigness and length of the pipe. B. sheweth the brink on the broader end. D. sheweth the outside of the brink. This instrument must be applied to the lower part of the patient: on the upper end it is compassed with a brink for the passage of the urine, for thereby it will receive the urine the better, and carry it from the patient, as he standeth upright.

The description of a pipe, or conduit, serving instead of the yard in making of water, which therefore we may call an artificial yard.

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The figure of an instrument, which you may call A Bason, or receptacle for the urine.

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By what means the perished function or action of a thumb or finger may be corrected and amended.

When a sinew or tendon is cut clean asunder, the action in that part, whereof it was the author, is altogether abolished, so that the member cannot bend or stretch out itself, unless it be helped by art: which thing I performed in a certain gentleman belonging to Annas of Montmorency, general of the French Horsemen, who in the battle of Dreux received so great a wound with a back-sword, upon the outside of the wrist of the right hand, that the tendons that did erect or draw up the thumb were cut clean in-sunder, and also when the wound was throughly whole and consolidated, the thumb was bowed inwards, and fell into the palm of the hand, so that he could not extend or lift it up, unless it were by the help of the other hand, and then it would presently fall down again; by reason whereof he could hold neither sword, spear, nor javelin in his hand, so that he was altogether unprofitable for war, without which he supposed there was no life. Wherefore he consulted with me about the cutting away his thumb, which did hinder his gripping, which I refused to doe, and told him that I conceived a means how it might bee remedied without cutting away. Therefore I caused a case to bee made for it of Latine, whereinto I put the thumb: this case was so artificially fastened by two strings that were put into two rings, made in it above the joint of the hand, that the thumb stood upright, and straight out, by reason whereof he was able afterwards to handle any kind of weapon.

The form of a thumb or finger-stall of iron or latine, to lift up or erect the thumb, or any other finger that cannot be erect of itself.

If that in any man the sinewes or tendons which hold the hand upright, be cut asunder with a wound, so that he is not able to lift up his hand, it may easily bee erected or lifted up with this instrument that followeth, being made of an equal, straight, thin, but yet strong plate of latine, lined on the inner side with silke, or any such like soft thing, and so plac’d in the wrist of the hand, that it may come unto the palm, or the first joints of the fingers, and it must bee tyed above with convenient shaves, and to the discommodity of the depression, or hanging of the hand, may bee avoyded; therefore this instrument may be called the Erector of the hand.
Of helping those that are Varus or Valgus, that is, crooke-legged or crooke-footed, inwards or outwards.

Hose are said to bee Varous, whose feet or legs are bowed or crooked inwards. This default is either from the first conformation in the wombe, through the default in the mother, who hath her legs in like manner crooked; or because that in the time when she is great with child, she commonly fits with her legs a croffe: or else after the child is born, & that, either because his legs be not well swathed, when he is laid into the cradle, or else because they bee not well placed in carrying the infant, or if he be not well looked unto by the nurse when he learneth to goe, for the bones of infants are very tender, and almost as flexible as Waxe.

But contrariwise, those are called Valgis, whose legs are crooked or bowed outwards. This may come through the default of the first conformation, as well as the other, for by both, the feet and all the knees may bee made crooked; which thing, whoever will amend, must restore the bones into their proper and natural place, so that in those that are varous bee must thrust the bones outwards, as though bee would make them valgus; and in those that are valgus, bee must thrust the bones inwards, as though bee would make them varous: neither is it sufficient to thrust them so, but they ought also to be retained there in their places after they are so thrust, for otherwise they being not well establisht, would slip back again.

They must bee playd in their places by applying of collers and bolsteres on that side whereunto the bones doe lean and incline themselves; for the same purpose boots may bee made of leather, of the thicknesse of a tefton; having a slit in the forepart all along the bone of the leg, and also under the sole of the foot, that being drawne together on both sides, they may be the better fitted, and be the closer to the leg. And let this medicine following be applyed all about the leg, R. turris, and artemisia, arnemis, an.3i. alummi nigh, resina pini ficea, habalis sertim pulveris, an.3ii. furina volat. si. album, siv. q. f. make thereo medicine. You may also add a little turpentine, left it should dry sooner, or more vehemently than is necessary. But you must beware, and take great heed left that such as were of late varous or valgus should attempt or straine themselves to goe before that their joynts be confirmed, for so the bones that were lately set in their places, may slip and slide againe. And more-
over, until they are able to goe without danger, let them weare high shoos tied close to their feet, that the bones may be stayed the better and more firmly in their places, but let that side of the soale of the shooe be underlayed whither the foote did incline before it was restored.

The forme of little bootes, whereof the one is open and the other shut.

CHAP. XII.

By what meanes armes, legs, and hands may be made by art, and placed instead of the natural armes, legs, or hands that are cut off and lost.

Ecceffity oftentimes constraines us to find out the meanes whereby we may help and imitate nature, and supply the defect of members that are perished and lost. And hereof it commeth that we may performe the functions of going, standing and handling with armes and hands made by art, and undergoe our necessary flexions and extensions with both of them. I have gotten the formes of all those members made so by art, and the proper names of all the engines and instruments whereby those artificially made are called, to my great cost and charges, of a most ingenious & excellent Smith dwelling at Paris, who is called of those that know him, and also of strangers, by no other name than the little Loraine, and here I have caused them to bee portrayed or set downe, that those that stand in neede of such things, after the example of them, may cause some Smith, or such like workman to serve them in the like cafe. They are not onely profitable for the necceffity of the body, but also for the decency and comeliness thereof. And here followeth their formes.
The forme of an hand made artificially of iron.

This figure following sheweth the back-side of an hand artificially made, and so that it may be tied to the arme or sleeve.
A supplement of the defects in Man's body. LIB. 23.

The forme of an arm made of iron very artificially.

The description of legs made artificially of iron.
A. Sheweth the stump or Slack of the wooden leg. BB. Sheweth the two Flayed which must
be on both Sides of the leg, the shorter of them must bee on the inner side. CC. Shew-
eth the pillow or bolster whereon the knee must rest in the bottome between the two Flayes,
that so it may rest the fatter. DD. Sheweth the thongs or Girdels with their round
latchets, put through the two Flayes on either side to fast the knee in his place firm and im-
moveable, that it slip not aside. E. Sheweth the thigh it selfe, that you may know after
what fashion it must stand.

It happens also many times, that the patient, that hath had the nerves or tendons
of his leg wounded, long after the wound is whole and consolidated, cannot goe but
with very great paine and torment, by reason that the foot cannot follow the muscle,
that should draw it up. That this maladie may be remedied you ought to falte a linen
band made very strong, unto the shooe that the patient weareth on that his pain-
ned foot, and at the knee it must have a flat where the knee may come forth in bowing
of the leg, and it must be tuffled up fast unto the patients middle, that it may the better
lift up and erect the foot in going. This band is marked in the figure following with
the letters A A.
Altering is not only a great deformity, but also very troublesome and grievous. Therefore if any man be grieved therewith by reason that one of his legs is shorter than the other, it may be helped by putting under his short foot this fitting crutch, which we are now about to describe. For by the help of this, he shall not only go upright, but also more easily and with little labour or no pain at all. It was taught me by Nicholas Picard Chirurgian to the Duke of Lorraine. The form thereof is this.

A. Sheweth the staffe or fist of this crutch, which must be made of wood. B. Sheweth the seat of iron whereon the thigh resteth, just under the buttocke. C. Sheweth a prop which stayeth up the seat whereon all the weight of the patient's body resteth. D. Sheweth the stirrup, being made of iron, and bowing crooked upwards, that the foot may stand firm, and not slip off, when the patient goeth. E. Sheweth the prop that stayeth the stirrup, to strengthen it. F. Sheweth the stock of the fist or crutch made of iron with many pikes, and compassed with a ring or strake, so to keep it from slipping. G. The crosse or head of the crutch which the patient must put under his arme-hole to lean upon, as it is to be seen in the figure.

The End of the Twentieth third Booke.
OF THE

GENERATION

OF MAN.

THE TWENTY FOURTH BOOK.

THE PREFACE.

OD, the Creator and maker of all things, immediately after the Creation of the world, of his unspakable coun[ell and intesnable wisedome not onely distinguishing mankinde, but all other living creatures also, into a dooble sex, to wit, of male and female; that so they being moved and ensniced by the allurements of lust, might desire copulation, thence to have procreation. For this bountifull Lord hath appointed it as a solace unto every living creature against the most certaine & fellall necessity of death: that so as much as each particular living creature cannot continue for ever, yet they may endure by their species or kinde by propagation and succession of creatures, which is by procreation, so long as the world endureth. In this conjunction or copulation, replenished with such delectable pleasure, which God hath chiefly established by the law of Matrimony, the male and female yield forth their seeds, which presently mixed and conjoined, are received and kept in the females wombe. For, the seed is a certaine phymous or foame humour replenished with vitall spirit, by the benefit whereof, as it were by a certain ebullition or fermentation, it is puffed up and swolne bigger, and both the seeds being separated from the more pure blood of both the parents, are the materiall and formal beginning of the issue, for the seed of the male being cast and received into the wombe, is accounted the principall and efficient caufe, but the seed of the female is reputed the subjacent matter, or the matter whereon it worketh. Good and laudable seede ought to bee white, shining, clammy, knotty, smelting like unto the elder or palme, delectable to bees, and sinking downe to the bottome of water being put into it, for that which swimmeth on the water is esteemed unfruitfull; for a great portion commeth from the brain, yet some thereof filleth from the whole body, and from all the parts both firme and soft thereof. For wherefore it come from the whole body, & every part thereof, all and every part of the issue cannot be formed thereby: because


THE DIFFUSION

OF MALE AND

FEMALE.

THE CAUSE OF

THE DIFFUSION.

WHAT SEED.

THE CONDITIIONS

OF GOOD SEED.

SEED FALLETH

FROM ALL THE

PARTS OF THE

BODY.
Concerning the Generation of Man.

Like things are engendered of their like: and therefore it cometh that the child resemeth the parents, not only in feature and favour, but also in the conformation and proportion of his limbs and members, and complexion and temperature of his inward parts, so that diseases are oft times hereditary, the weakness of this or that ennaing being translated from the parent to the childe. There are some which suppose this falling of the seed from the whole body not to be understood according to the weight and measure, as if it were a certaine portion of all the blood separated from the rest, but according to the power and force, that is to say the animall, natural, and vital spirits, being the framers of formation and life, and also the formative faculty, to fall down from all the parts into the seed, that is wrought or perfected by the Testicles, for proofe and confirmation whereof, they allege that many perfect, sound, absolute, and well proportioned children, are borne of lame and decrepit parents.

CHAP. I.

Why the generative parts are endued with great pleasure.

Certaine great pleasure accompanieth the function of the parts appointed for generation, and before it, in living creatures that are of a lusty age, when matter aboundeth in those parts, there goeth a certaine fervent or furious desire; the causes thereof are many, of which the chiefest is, That the kind may be preserved and kept for ever, by the propagation and substation of other living creatures of the same kinde. For brute beafts which want reason, and therefore cannot bee solicitous for the preservation of their kind, never come to carnall copulation, unlefe they be moved thereunto by a certaine vehement provocation of unbridled luft, and as it were by the simulation of venery. But man, that is endued with reason, being a divine and most noble creature, would never yeeld nor make his minde subject to a thing so abject and filthy as carnall copulation, but that the venereous ticklings, rafed in those parts, relaxe the severity of his mind, or reason admonish him that the memory of his name ought not to end with his life, but to be preserved unto all generations, as farre as may be possible, by the propagation of his seed or issue. Therefore by reason of this profit or commodity, nature hath endued the genitall parts with a far more exact or exquisite sense than the other parts, by sending the great finewes unto them, and moreover she hath caused them to be bedewed or moistened with a certaine whysyll humoure, not much unlike the seed sent from the glandules or cornells called proflate, situated in men at the beginning of the necke of the bladdr, but in women at the bottome of the wombe: this moisture hath a certaine sharpe perfect biting, for that kinde of humour of all others can chiefly provoke those parts to their function or office, and yeeld them a delectable pleasure, while they are in the execution of the same. For even so whyssyll and sharpe humours, when they are gathered together under the skinne, if they waxe warme, tickle with a certaine pleasant itching, and by their motion interfere delight: but the nature of the genitall parts or members is not thinned up or provoked to the expulsion of the feed with these provocations of the humours, abounding either in quantity or quality onely, but a certaine great and hot spirit or breath concerned in those parts, doth begin to dilate or felle more and more, which causeth a certaine incredible excess of pleasure or voluptuounesse, wherewith the genitalls being replete, are spread forth or distended, every way unto their full greatnesse. The yard
Concerning the Generation of Man.

yard is given to men whereby they may cast out their seed directly or directly into the womans wombe, and the necke of the wombe to women, whereby they may receive that seed cast forth, by the open or wide mouth of the same necke, and also that they may cast forth their owne seed, sent through the spermaticke vessels unto their tefticles: these spermaticke vessels, that is to say, the veine lying above, and the artery lying below, do make many flexions or windings, yet one as many as the other, like unto the tendrills of vines diversely platted or folded together, and in these folds or bendings the blood and spirit which are carryed unto the tefticles, are concocted a longer time, and so converted into a white feminall substance. The lower of these flexions or bowings do end in the fones or tefticles. But the tefticles, for as much as they are loose, thin, and spongie or hollow, receiving the humour which was begun to be concocted in the forenamed vessels, concoct it against themselves but the tefticles of men concoct the more perfectly for the procreation of the issue & the tefticles of women more imperfectly, because they are more cold, leffe, weake and scele, but the seed becometh white by the contact or touch of the tefticles, because the substance of them is white. The male is such as engendereth in another, and the female in her selfe, by the spermaticke vessels which are implanted in the inner capacity of the womb. But out of all doubt unleffe nature had prepared fo many as is given to men whereby they may cast out their seed directly or directly into the womans wombe, being wide open, into the wombe with a certaine impetuofity, his yard being stiff and distended, and necessary unto the necessity of the wombe, that so it may be tempered by conjunction, committion & communion with the mans seed, and so reduced or brought unto a certaine equality: for generation or conception cannot follow without the concourse of two seeds, well and perfectly wrought in the very same moment of time, nor without a laudible disposition of the wombe both in temperature and complexion: if in this mixture of seeds the mans seed in quality and quantity exceed the womans, it will be a man child, if not, a woman child, although that in either of the kindes there is both the mans and womans seed, as you may fee by the daily experience of those men who by their first wives have had boyes only, and by their second wives had girles only: the like you may fee in certaine women, who by their first husbands have had males only, and by their second husbands females only. Moreover, one and the same man is not always like affected to get a man or a woman child, for by reason of his age, temperature and diet, hee doth sometimes yeeld forth seed endued with a masculine vertue, and sometimes with a feminine or weake vertue, so that it is no marvel if men get sometimes men, and sometimes women children.

Why the frumenty endeth without conception.

Why many men and women abortive.

Why the spermaticke vessels are impregnated.

Why many men and women are abortive.
Concerning the Generation of Man.

CHAP. II.

Of what quality the seeds, whereas the male, and whereas the female is engendered.

All children are engendered of a more hot and dry seed, and women of a more cold and moist: for there is much lefle strength in cold than in heat, and like wise in moisture than in dryness, and that is the cause why it will be longer before a girl is formed in the womb than a boy.

In the feed lyeth both the procreative and the formative power: as for example; in the power of the Melon seed are innate the stalks, branches, leaves, flowers, truite, the forme, colour, smell, taste, feed and all. The like reason is of other feeds; so Apple grafts engraven in the flock of a Pear tree, beare Apples; and we doe always finde and see by experience, that the tree (by vertue of grafting) that is grafted, doth convert it selfe into the nature of the Sions wherewith it is graftet.

But although the childe that is borne doth resembre or is very like unto the father or the mother, as his or her feed exceededeth in the mixture, yet for the most part it happeneth that the children are more like unto the father than the mother, because that in the time of copulation, the minde of the woman is more fixed on her husband, than the minde of the husband on, or towards his wife: for in the time of copulation or conception, the formes, or the likenesses of those things that are conceived or kept in minde, are transported and imprinted in the childe or issue; for so they affirm that there was a certain Queenne of the Ethiopians who brought forth a white child, the reason was (as she confessed) that at the time of copulation with her King, she thought on a marvellous white thing, with a very strong imagination. Therefore advised all married people not to give themselves to carnall copulation when they return from burials, but when they come from feasts and plaiers, lest that their fad, heavy, and penive cogitations, should bee transferred and engraven in the issue, that they should contaminate or infect the pleasant joyfulness of his life, with sad, penive and passionate thoughts. Sometimes it happeneth, although very seldom, the childe is neither like the father nor the mother, but in favour resembles his Grandfather, or any other of his kindred, by reason that in the inward parts of the parents, the engraven power and nature of the grandfather lieth hidden; which when it hath lurked there long, not working any effect, at length breaks forth by means of some hidden occasion; wherein nature resembelth the Painter, making the lively portraiture of a thing, which as far as the subject matter will permit, doth forme the image like unto the parents in every habit, so that oftentimes the diseases of the parents are transferred or participated unto the children, as it were by a certaine hereditary title: for those that are crooke-backt get crooke-backt children, those that are lame, those that are leprous, those that have the fchine, children having the fchine; those that have the stonke, children having the stonke; and those that have the gout, children having the gout; for the feed followes the power, nature, temperature, and complexion of him that engendereth it. Therefore of those that are in health and sound, healthy and sound; and of those that are weak and diseased, weak and diseased children are begotten, unleffe happeneth the feed of none of the parents that is found doth correct or amend the diseased imprefion of the other that is diseased, or else the temperate and sound womb as it were by the gentle and pleasant breath thereof.
CHAP. III.

What is the cause why the Females of all brute beasts, being great with young, doe neither desire, nor admit the males, until they have brought forth their young.

He causeth hereof, that, forasmuch as they are moved by sense only, they apply themselves unto the thing that is present, very little or nothing atall perceiving that is past, and to come. Therefore after they have conceived, they are unmindful of the pleasure that is past, and doe abhor copulation: for the sense or feeling of lust is given unto them by nature, only for the preservation of their kind, and not for voluptuousness, or delagation. But the males, raging, dwelling, and as it were stimulated by the provocations of the heart, or fervency of their lust, do then runne unto them, follow and desire copulation, because a certaine strong odour or smell commeth into the aire from their secret or genital parts, which pierceth into their nostrils, and unto their brains, and so infetheth an imagination, desire, and heat. Contrariwise, the sense and feeling of venereal actions is so given to be by nature only to women, not only for the propagation of mankind, but also to mitigate and allay the miseries of mans life, as it were by the enticements of that pleasure also the great force of lust blood that is about the heart, wherewith men abound, maketh greatly to this end, which by impulsion of imagination, which ruleth the humors, being driven by the proper passages, downe from the heart and entrails into the genital parts, doth fire up in them a new lust.

The males of brute beasts, being provoked or moved by the stimulations of lust, rage, and are almost burst with a Tehnigo or extention of the genital parts, and sometimes waxe mad, but after that they have satisfied their lust with the female of their kind, they presently become gentle, and leave off such fierceness.

CHAP. III.

What things are to be observed, as necessary unto generation in the time of copulation.

Then the husband commeth into his wives chamber, he must entertain her with all kind of dalliance, wanton behaviour, and allurements to venery: but if he perceive her to be slow, and more cold, he must cherish, embrace, and tickle her, and shall not abruptly, the nerves being Suddenly distended, break into the field of nature, but rather shall creep in by little and little, intermixing more wanton kishes with wanton words and speeches, handling her secret parts and dugs, that she may take fire and bee enflamed to venery, for so at length the wombe will strive and waxe fervent with a desire of casting forth its owne seed, and receiving the mans seed to bee mixed together therewith. But if all these things will not suffice to enflame the woman, for women for the most part are more slow and slack unto the expulsion or yelding forth of their feed, it shall be necessary first to foment her secret parts with the decoction of hot herbes made with Muscadine, or boiled in any other good wine, and to put a little muske or civet into the neck or mouth of the wombe: and when she shall perceive the efflux of her seed to approach, by reason of the tickling pleasure, she must advertise her husband thereof, that at the very instant time or moment, he may also yeeld forth his feed, that by the concurrie of the feeds, conception may be made, and so at length a child formed and borne. And that it may have the better successe, the husband must not presently separe himselfe from his wives embraces, lest the aire strike into the open wombe,
Concerning the Generation of Man.

and so corrupt the seeds before they are perfectly mixed together. When the man departs, let the woman lie still in quiet, laying her legs or her thighs across, one upon another, and raising them up a little, lest that by motion or downward situation, the seed should be fired or split: which is the cause why she ought at that time not to talk, especially chiding, nor to cough, nor sneeze, but give herself to rest and quietness, if it be possible.

Chap. V.

By what signs it may be known whether the woman has conceived or not.

If the seed in the time of copulation, or presently after be not split, if in the meering of the seeds the whole body doe somewhat flake, that is to say, the womb drawing it selfe together for the compreesion & entertainment thereof, if a little feeling of pain doth runne up and downe the lower belly and about the navell, if she be sleepy, if she loath the embracings of a man, and if her face be pale, it is a token that she hath conceived.

In some, after conception spots or freckles arise in their face, their eyes are depressed and sunken in the white of their eyes waxeth pale, they waxe giddy in the head, by reason that the vapours are raised up from the menfrual blood that is dropped, fadness & heavynesse grieve their minde, with loathing and waywardnesse, by reason that the spirits are covered with the smoky darkness of the vapours: paines in the teeth and gums, and swouning often times commeth, the appetite is depraved or overthrown, with apetite to vomit, and longings, whereby it happeneth that they loath meats of good juice, and long for and desire illuadable messes, and those that are contrary to nature, as coales, dirt, ashes, flinking salt-salt, sourre, and tarte fruits, pepper, vinegar, and such like acride things, and other, altogether contrary to nature and use, by reason of the condition of the suppresed humour abounding & falling into the office of the fo-mack. This appetite is depraved or overthrown, endureth in some until the time of child-birth: in others it commeth in the third moneth after their conception, when haires do grow on the childe, and lastly it leaveth them a little before the fourth moneth, because that the child being now greater and stronger, consumes a great part of the extremal and superfetitious humour.

The suppresed or stopped tears in women that are great with child, are divided into three parts: the more pure portion maketh the nutriment for the childe, the second accendeth by little and little into the ducts, and the impurest of all remaineth in the womb about the infant, and maketh the secundane or after-birth, wherein the infant lieth as in a soft bed. Tho se women are great with child whose urine is more sharper, fervent, and somewhat bloody, the bladder not only waxing warme by the compreesion of the womb, fervently by reason of the blood contained in it, but also the thinner portion of the same blood being expressed, and sweating out into the bladder. A swelling and hardnesse of the ducts, and veins that are under the ducts in the breasts and about them, and milke coming out when they are presst, with a certaine flaming motion in the belly, are certaine infallible signs of greatnesse with childe. Neither in this greatnesse of childe-bearing, the veins of the duges onely, but of all the whole body, appeare full and swelled up, especially the veins of the thighs and legges, so that by their manifold folding and knitting together, they do appeare various, whereof commeth flagginess of the whole body, heaviness & impotency or difficulty of going especially when the time of deliverance is at hand. Lately, if you would know whether the woman have conceived or not, give unto her when she goeth to sleepe, some meed or honeyed water to drink, and if she have a griping in her guts or belly, she hath conceived, if not, she hath not conceived.
Concerning the Generation of Man

Chapter VI

That the womb, so soon as it hath received the seed, is presently con

tracted or drawn together.

For that the seeds of the male and female have both met, and are

mixed together in the capacity of the womb, then the orifice
thereof doth draw itself close together, lest the seeds should

fall out. There the females seed goeth and returneth into nutri-
tment and the encrease of the males seed, because all things are

nourished and do encrease by those things that are most fami-

liar and like unto them. But the similitude and familiarity of

seed with seed is farre greater than with blood, so that when they are perfectly

mixed and coagulated, and so waxe warme by the straight and narrow inclosure of

the wombes, a certaine thimne skinne doth grow about it, like unto that that will bee

over uncommitted milk.

Moreover, this concretion or coagulating of the seed, is like unto an egg layed

before the time that it shoulde: that is to say, whose membrane or tunicle that com-
paßeth it about, hath not as yet encreased or grown into a thicke hardnesse about

it; in folding-wisewise see many small threads dividing themselves, over-spread

with a certaine clammy, whitish or red substance, as it were with blacke blood. In

the midst of under it appeareth the navell, from whence that small skinne is produ-

ced. But a man may understand many things that appertain unto the conception

of mankinde by the observation of twenty eggcs, setting them to bee hatched under

an Henn, and taking one every day and breaking it, and diligently considering it for

so doing, on the twentieth day you shall finde the Chick perfectly formed with the

navell. That little skin that so compasseth the infant in the womb is cal-

led the secundine or Chorioftic, but commonly the after-birth.

This little skinne is perfectly made within five daies, according to the judgment of

Hippocrates, as profitable and necessary not onely to containe the seeds so mixed

together, but also to sucke nutriment through the orifices of the vessels ending in the

wombes. Those orifices the Greekes doe call Cotyledones, and the Latines Acte-
tabula, for they are as it were hollowed eminences, like unto those, which may

be seen in the feete or snout of a Cattel fih many times in a double order, both

for the working and holding of their meate. Those eminences called Actetabula

do not greatly appeare in women as in many brute beafts. Therefore by these

the secundine cleaveth on every side unto the wombes, for the conservation, nutrition,

and encrease of the conceived seede.

Chapter VII

Of the generation of the navell.

For the woman hath conceived, to every one of the aforefaied emi-
nences groweth presently another vessel, that is to say, a vein to the

veine, and an artery to the artery: thefe soft and yet thin vessels, are framed

with a little thin membrane, which being spread under, flipteth

to them, for to them it is in feend of a membrane, and a ligiment and a

tunicle or a defence, and it is doubled with the others, and made of the veine and ar-

tery of the navell, to compass the navell. These new small vessels of the infant, with

their orifices, doe answer directly one to one to the cotyledones or eminences of the

womb, they are very swall and little, as it were the hairy fibres that grow upon roots

that are in the earth, and when they have continued so a longer time, they are combi-

ned together, that of two they are made one vessell, until that by continual connexi-

on, all those vessels go and degenerate into two other great vessels, called the umbi-

lical.
Concerning the Generation of Man.

L I B. 24.

The veins of vell, or the vell of the navell, because they do make the navell, and do enter into the child, body by the hole of the navell. Here Salen doth admire the singular providence of God and Nature, because that in such multitude of vell, and in so long a passage or length that they go or are produced, the vein doth never confound it self nor tick to the artery, nor the artery to the vein, but every vell doth joyneth it selfe to the vell of its owne kinde. But the umbilical vein or navell vell, entering into the body of the child, doth joyneth it self presently to the hollow part of the liver, but the artery is divided into two, which joine themselves to the two ilack vell along the sides of the bladder, & are presently covered with the perisonaeum, & by the beneft thereof are annexed unto the parts which it goes unto. Those small vell and arteries are as it were the tootes of the child, but the vell and artery of the navell are as it were the body of the tree, to bring down the nutriment to nourish the child. For first we live in the womb the life of a plant, and then next the life of a vell of nature; and as the first tunicle of the child is called Chorion or Allantoises, so the other is called Amnios or Agmina, which doth comphafe the seed or child about on every side. Those membranes are most thin, yea for their thinnesse like unto the spiders web, woven one upon another, and also connect in many places by the excremities of certain small and hairy substance, which at length by the adhesion of their like do get strength, whereby you may understand, what is the caufe why by divers and violent motions of the mother in going and dancing or leaping, and also of the infant in the womb, those membranes are not almost broken. For they are so conjoined by the knots of those haire vell, that between them nothing, neither the vell nor the sweate can come, as you may plainly and evidently perceive in the diffeccion of a woman body that is great with child, not depending on any other mans opinion, but it never fo old or inverterate: yet the strength of those membranes is so great but that they may bee whole broken in the birth by the kicking of the child.

Chap. VIII.

Of the umbilical vell, or the vell belonging to the navell.

An old opinion continued.

Any of the ancient Writers have written that there are five vell found in the navell. But yet in many, nay all the bodies I sought in for them, I could never finde but three, that is to say, one vell, which is very large, so that in the passage thereof it will receive the tage of a poyn, and two arteries, but not so large, but much narrower, because the child wanteth or standeth in need of much more blood for his conformation and the nutriment or increase of his parts than of vitall spirit.

Those vell making the body of the navell, which, as it is thought, is formed within nine or tenne days, by their doubling and folding, make knots like unto the knots of a Francifan Friers girdle, that playing the running blood in those their knotty windings, they might more perfectly conceit the same: as may bee seen in the exculatory perimetrick vell, for which use also the length of the navell is halfe an ell, so that in many infants that are somewhat grown, is found three or foure times doubled about their neck or thigh.

As long as the child is in his mothers wombe, hee taketh his nutriment onely by the navell, and not by his mouth, neither doth hee enjoy the use of eyes, ears, nostrils or fundament, neither needeth hee the functions of the heart. For spiritus bloud goeth unto it by the arteries of the navell, and into the ilack vell, and from the ilack vell unto all the other arteries of the whole body, for by the motion of these onely the infant doth breathe. Therefore it is not to bee supposed that aire is carried or drawn in by the lungs unto the heart, in the body of the childe, but contrariwise from the heart to the lungs. For neither the heart doth performe the generation or working of bloud, or of the vitall spirits. For the illue or infant is contented.
Concerning the Generation of Man.

Chapter IX.

Of the evacuation or swelling of the seed in the womb, and of the concretion of the bubbles or bladders, or the three principal entrails.

In the first days of conception the new vessels are thought to be made and brought forth of the eminences or cotylidons of the mothers vessels, and dispersed into all the whole seed, as they were fibres or hairy strings. Those as they pierce the womb, do they equally and in like manner penetrate the unicole Chorion. And it is carried this way, being a passage not only necessary for the nutrient and conformation of the parts, but also into the veins diversely woven and dispersed into the skin Chorion. For thereby it commeth to pase that the seed is boiled, and as it were fermenteth or swelleth, not only through occasion of the place, but also of the blood and vital spirits that flow unto it, and then it refeth into the bubbles or bladders, like unto the bubbles which are occasioned by the rain falling into a river or channel full of water. These three bubbles or bladders, are certain rude or new forms or concretions of the three principal entrails, that is to say, of the liver, heart and braine. All this former time it is called seed, and by no other name; but when those bubbles arise, it is called an embryo, or the rude form of a body until the perfect conformation of all the members: on the fourth day after that the vein of the navell is formed, it sucketh greater blood, that is, a more full nutrient out of the Cotylidons. And this blood, because it is more grosse, easily congeales & curdles in that place, where it ought to prepare the liver fully & absolutely made. For then it is of a notable great bigness above all the other parts, and therefore it is called parenchyma, because it is but only a certain congealing or concretion of blood brought together thither or in that place. From the gibbous part thereof springeth the greater part or trunkle of the hollow veins, called commonly venae cavae, which doth diffuse his small branches, which are like unto haires, into also the substance thereof: and then it is divided into two branches, whereof of the one goeth upwards, the other downwards unto all the particular parts of the body.

In the meantime the Arteries of the navell suck spirituous blood out of the eminences or Cotylidons of the mothers arteries, whereof that is to say, of the more fervent and spirituous blood, the heart is formed in the second bladder or bubble, being endued with a more flethy, found and thicke substance, as it behoveth that vessel to bee, which is the fountaine from whence the heat floweth, and hath a continual motion.

In this the venous formative hath made two hollow places, one on the right side, another on the left. In the right, the root of the hollow vein is infixed or ingrafted, carrying thither necessary nutrient for the heart; in the left is formed the stem or root of an artery, which presently doth divide it selfe into two branches, the greater whereof goeth upwards to the upper parts, and the wider unto the lower parts, carrying unto all the parts of the body life and vital heat.
Concerning the Generation of Man.

Of the third bubble or bladder, wherein the head and the braine is formed.

Why the greater portion of the feede goeth into this third bubble, that is to say, yeelding matter for the conformation of the braine and all the head. For a greater quantity of seede ought to goe unto the conformation of the head and braine, because these parts are not fanguine or bloody as the heart and liver, but in a manner without blood; bone, marrow, cartilaginous, nervous and membranous, whole parts, as those veins, arteries, nerves, ligaments, pancreas, and skirne, are called spermaticke parts, because they obtaine their first conformation almost of feede onely: although that afterwards they are nourished with blood, as the other fleshly and muculous parts are. But yet the blood when it is come unto these parts, degenerateth and turneth into a thing somewhat spermatick, by vertue of the affimulative faculty of those parts. All the other parts of the head, forme and fashion themselves unto the forme of the braine when it is formed, and those parts which are situated and placed about it for defence especially, are hardened into bones.

The head as the fatory of the senses, and mansion of the minde and reason, is situated in the highest place, that from thence, as it were from a lofty tower or tower, it might rule and governe all the other members and their functions and actions, that are under it, for there the soule or life which is the rectific or governicte is situated; and from thence it floweth and is dispersed into all the whole body. Nature hath framed these three principall centrals as propes and sustentations for the weight of all the rest of the body: for which matter also shee hath framed the bones.

The first bones that appear to bee formed, or are supposed to be conformed, are the bones called ossa ilium, connexed or united by spondils that are betweene them: then all the other members are framed & proportioned by their concavities & hollownesse, which generally are heaven, that is to say, two of the ears, two of the nose, one of the mouth, and in the parts beneath the head, one of the fundament, and another of the yard or conduit of the bladder; and furthermore in women, one of the necke of the wombe, without the which they can never be made mothers or beare children.

When all these are finished, nature, that shee might polish her excellent worke in all sorts, hath covered all the body and every member thereof with skinne. Into this excellent work or Microcosmos so perfected, God, the author of nature and all things, infused or ingrafted a soule or life; which St. Augustinus proveth by this sentencc of Moses: If any man slaine a woman with child, so that thereby the be delivered before her natural time, and the child be dead, being first formed in the wombe, let him die the death: but if the child hath nor as yet obtained the full proportion and conformation of his body and members, let him recompence it with mony. Therefore it is not to bee thought that the life is derived, propagated or taken from Adam or our parents, as it were an hereditary thing distributed unto all mankind by their parents; but we must believe it to be immediately creatted of God, even at the very instant time when the child is absolutely perfected in the lineaments of his body, and so given unto it by him.

So therefore the rude lumpes of flesh called mole that engender in wombes, and monsters of the like breeding and confused bignesse, although by reason of a certaine quaking and shivering motion, they seeme to have life, yet they cannot bee supposed to bee endued with a life or a reasonable soule: but they have their motion, nutriment and increase wholly of the natural and infused faculty of the wombe, and of the generative or procreative spirit that is engraffed naturally in the feed.

But even as the infant in the wombe obtayneth not perfect conformation before the thirtieth day, so likewise it doth not move before the sixtieth day: at which time...
time it is most commonly not perceived by women, by reason of the smallness of the motion. But now let us speake briefly of the life or soule, wherein consisteth the principall originall of every function in the body, and likewise of generation.

CHAP. XI.

Of the life or soule.

The soule entereth into the body, so soone as it hath obtained a perfect and absolute distinction and conformation of the members in the womb: which in male children, by reason of the more strong and forming heat which is engraffed in them, is about the fortieth day, and in females about the forty fifth day, in some sooner, and in some later, by reason of the efficacy of the matter working, and plyantneffe or obedience of the matter whereon it worketh. Neither doth the life or soule being thus inspired into the body presently execute or performe all his functions, because the instruments that are placed about it cannot obtaine a firme and hard confiftence necessary for the lively, but especially for the more divine minifteries of the life or soule, but in a long proceffe of age or time.

Those instruments of the soule are vitiated either in the first conformation, as when the forme or fashion of the head is sharp upwards or pyramidall, as was the head of Thersites, that lived in the time of the Troias warre, and of Tribulet and Tondia, that lived in later yeares; or also by some casualty, as by the violent handling of the mydwife, who by compression, by reason that the feull is then tender and soft, hath causeth the capacity of the ventricles that be under the braine to be too narrow for them: or by a fall, stroke, disorder in diet, as by drunkenneffe, or a fever, which interreth a litharage,executive sleepineffe, or a phrenie.

Presently after the soule is entred the body, God enduerth it with divers and sundry gifts: whereof it commeth that some are endued with wisedome by the spirit; others with knowledge by the fame spirit; others with power, dominion and rule; others with propheticke; others with divers tongues: and to others other endowments, as it hath pleased the divine providence and bounty of God to bestowe upon them, against which no man ought to contend or speake. For it is not meet that the thing formed shoule say, unco him that formed it, why hast thou made mee on this fashion? hath not the Potter power to make of the same lumpce of clay one vefleil to honour and another to dishonour? it is not my purpose, neither belongeth it unto mee or any other humane creature to search out the reason of those things, but onely to admire them with all humility: But yet I dare affirm this one thing, that a noble and excellent soule neglecteth elementary and transitory things, and is ravished and moved with the contemplation of celestall, which it cannot freely enjoy before it bee separated from this earthly enclosure or prifon of the body, and be restored unto its original.

Therefore the soule is the inward Entelechius or perfection, or the primitive caufe of all motions and functions both natural and animall, and the true forme of man. The Ancients have endeavoured to expresse the obscure sense thereof by many descriptions. For they have called it a celestall spirit, and a superiour, incorporeal, invisibell, an immortal essence, which is to bee comprehended of its selfe alone, that is, of the minde or understanding. Others have not doubted but that wee have our soules inspired by the univerfall divine minde, which as they are alive, so they doe bellow life on the bodies unto whom they are annexed or united. And although this life be diffpered into all the whole body, and into every portion of the same, yet is it voyd of all corporall weight or motion, and it is wholly and alone in every severall part, being simple and indivisible, without all composition or mixture, yet endued with many vertues and faculties, which it dotheatter in divers parts.
Concerning the Generation of Man.

Parts of the body: For it thinketh, imagineth, judgeth, remembreth, understandeth, and ruleth all our desires, pleasures and animal motions; it seeth, heareth, smelleth, tasteth, toucheth; and it hath divers names of these so many and so great functions which it performeth in divers parts of the body. It is called the soul or life, because it maketh the body live, which of it felle is dead. It is called the spirit or breath, because it inspireth our bodies. It is called reason, because it differeneth truth from falsehood, as it were by a certaine divine rule. It is termed the minde, because it is mindfull of things past, in recalling and remembering them: and it is called the vigour or courage, because it giveth vigour and courage to the sluggish weight or maffe of the body. And lastly it is called the sense and understanding, because it comprehendeth things that are sensible and intelligible. Because it is incorpory all it cannot occupy a place by corporeal extension, although notwithstanding it filleth the whole body. It is simple, because it is but one in essence, not encreased nor diminished: for it is no leffe in a Dwarf than in a Giant, and it is like perfected and great in an infant as in a man, according to its owne nature.

There kinds of bodies: There are three kinds of bodies informed by a soule whereby they live: the first being the most imperfect, is of plants, the second of brute beasts, and the third of men. The plants live by a vegetative, beasts by a sensitive, and men by an intellectual soule. And as the sensitive soule of brute beasts is endued with all the virtues of the vegetative, so the humane intellectual comprehendeth the virtues of all the inferior, not separated by any division, but by being indivisibly united with reason and understanding, into one humane forme and soule whereon they depend. But because we have sayd a little before, that divers functions of the life are resident, and appear in divers parts of the body, here in this place, omitting all others, we will prosecute those only which are accounted the principal.

The principal functions of a humane soule, according to the opinion of many, are foure in number, proceeding from somany faculties, and consequently from one soule; they are these: The common Sense, Imagination, Reasoning, and Memory. And they thinke that the common or interior sense doth receive the forms and images of sensible things, being carried by the spirit through the passage of the nerves, as an instrument of the external senses, as it were a messenger to goe between the common and external senses, and it serveth not only to receive them, but also to know, perceive and discern them. For the eye, wherein the external sense of seeing consisteth, doth not know white or black. Therefore it cannot discerne the differences of colours, as neither the tongue tasteth, nor the nose savoureth, nor the ears soundeth, nor latly, the hands their touching quality: yea, the eye doth not of itself perceive that it seeth, nor the nose that it smellith, nor the ears that they heare, nor the tongue that it tasteth, nor the hands that they touch. For all these things are the offices and functions of the common sense; for this sense knoweth that the eye hath seen some thing, either white, blacke, red, a man, horse, shephe, or some such like material thing, yea, even when the sight is gone and past, and so likewise the nose to have smelted this or that savour, the ear to have heard this or that sound, the tongue to have tasted this or that tafe, and the hand to have touched this or that thing, bee they never so divers. For all the external senses, and all the functions thereof do end and are referred to the common sense, as it were the lines of a circle from the circumference to the centre, as is expressed in this figure.

For which cause it is called the common or principal sense, for that therein the primitive power of feeling or perceiving is susuped, for it useth the ministry or service of the external senses to know many and divers things, whose differences it doth
doth discern and judge, but simple things, that are of themselves, and without any composition and connexion, which may constitute any thing true or false; or any argumentation, belongeth only to the minde, understanding or reason. For this was the counsel of nature, that the external senses should receive the forms of things superficially, lightly and gently only, like as a glasse, not to any other end but that they should presently send them unto the common sense, as it were unto their center and prince, which he (that is to say the common sense) at length delivereth to be collected unto the understanding or reasoning faculty of the soule, which Averroes and Avicen have supposed to be situated in the former part of the braine.

Next unto the common sense followeth the phantastical or imagination, so called because of it arise the forms and Ideas that are conceived in the minde, called the Greekes Phantastma. This doth never rest but in those that sleep; neither awaits in them, for oft-times in them it causeth dreams, and causeth them to suppose they see and perceive such things as were never perceived by the senses, nor which the nature of things, nor the order of the world will permit. The power of this faculty of the minde is so great in us, that often it bringeth the whole body in subjection unto it.

For it is recorded in history, that Alexander the Great sitting at Table, and hearing Timotheus the musician sing a martial Sonnet unto his Cithern, that hee presently leaped from the table, and called for arras; but when againe the musician mollified his tune, hee returned to the Table and sat downe as before. The power of Imagination caus'd by musical harmony, was so great, that it subjected to the courage of the Worlds conquerour, by whose various motion, it would now as it were cause him to runne headlong to armes, and then pacifie and quiet him, and cause him to returne to his chaire and banquetting againe. And there was one whofoever it was, who some few yeares agoe, seeing the Turke dance on a rope on high, with both his feet fastened in a balcon, turned his eyes from so dangerous a sight or spectacle, although hee came to the place of purpose to see it, and was stiticken with such fear, that his body shooke and heart quaked, for feare left that by sudden falling downe headlong he shou'd breake his necke. Many looking downe from an high and lofty place, are so stiticken with fear, that suddenly they fall downe headlong, being to overcome and bound with the imagination of the danger, that their owne strength is not able to sustaine them. Therefore it manifestly appeareth that God hath dealt most graciously and lovingly with us, who unto this power of imagination, hath joyned another, that is, the faculty or power of reason and understanding; which discerning false dangers and perils from true, doth sustain and hold up a man that he may not be overthrowne by them.

After this appeareth and approacheth to performe his function, the faculty of Reason, being the Prince of all the principall faculties of the soule; which bringeth together, compons, joineth and reduceth all the simple and divided forms or images of things into one heape, that by dividing, collecting and reasoning it might discern and try true from fallhood.

This faculty of Understanding or Reason is subject to no faculty or instrument. For it is free, and penetrateth into every secret, intricate and hidden thing, with an incredible celerity: by which a man seeth what will follow, perceiveth the originals and causes of things, is not ignorant of the proceedings of things, he comprehendeth things that are past with those that are present and to come, decreaseth what to follow, and what to avoyde. This bridleth and witheldeth the furious motions of the minde, bridleth the overhasty motions of the tongue, and admoniseth the speaker that before the words passe out of his mouth, hee ought with dilgence and discretion to ponder and consider the thing whereof he is about to speake.

After Reason and Judgement followeth Memory, which keeping and conferring all forms and images that it receiveth of the senses; and which Reason shall appoint, and as a faithful keeper and conferrer, receiveth all things, and imprints and fealeth them as well by their owne vertue and power, as by the impulsion and adherence of those things in the body of the braine, without any impression of the mater;
Concerning the Generation of Man.

Chap. XII.

Before I declare what excrements the infant excludeth in the womb and by what passages, I think it good to speak of the excrements which all men doe naturally voyde. All that is called an excrement which nature is accustomed to separate and cast out from the laudible and nourishing juice. There are many kinds of those excrements.

The first is of the first concoction, which is performed in the stomacke, which being driven downe into the intestines or guts, is voyded by the fundament.

The second cometh from the liver, and it usuall is three-fold, or of three kinds; one cholerick, whereof a great portion is sent into the bladder of the gall, that by expelling out there hence, it might stirre up the expulsive faculty of the guts to expell and exclude the excrements. The other is like unto whay, which goeth with the blood into the veins, and is as it were a vehicle thereto to bring it unto all the parts of the body, and into every Capillary vein for to nourish the whole body; and after it hath performed that function, it is partly expelled by sweate, and partly sent into the bladder, and so excluded with the urine.

The third is the melancholike excrement, which being drawn by the milt, the purer and thinner part thereof goeth towards the nourishing of the milt, and after the remnant is partly purged out doth afterwards by the hemorrhoidal veins, and partly sent to the orifice of the stomacke, to infultrate and provoke the appetite. The last cometh of the last concoction, which is absoved in the habit of the body, and breatheth out, partly by infensible transpiration, is partly consumed by sweating, and partly floweth out by the evident and manifiest passages that are proper to every part; as it hath peneteth in the braine before all other parts, for it doth unloade it selfe of this kind of excrement by the passages of the nose, mouth, ears, eyes, pallet bone and futures of the scull. Therefore if any of those excrements bee stayed altogether, or any longer than it is meete they should, the default is to be amended by diet and medicine.

Further there are other sorts of excrements not natural, of whom we have entreate at large in our book of the pestilence.

When the infant is in the mothers womb, untill hee is fully and absolutely formed in all the liniments of his body, hee sendeth forth his uryne by the passage of the navell or arachus. But a little before the time of child-birth, the arachus is cloed, and then the man childe voydeth his uryne by the conduit of the yarde, and the woman childe by the necke of the womb. This urine is gathered together and contained in the coate Chorion or Allantoides, together with the other excrements, that is to say sweate, and such whayish supernumeries of the mensural matter, for the more easie bearing up of the floathing or swimming childe. But in the time of child-birth, when the infant by kicking breakesth the membranes, those humous runne out, which when the mydwifes perceiue, they take it as a certaine signe that the childe is at hand.
Concerning the Generation of Man.

For if the infant come forth together with those waters, the birth is like to be more easy, and with the better faceceff: for the necke of the wombe and all the genitalls are to by their moisture relaxed and made slippery, that by the endeavourse and stirring of the infant the birth will be the more easy, and with the better faceceff: contrariwise, if the infant be not excluded before all these humours bee wholly flowed out and gone, but remaineth as it were in a dry place, presently through drincking the necke of the wombe and all the genitalls will be contracted and drawn together, so that the birth of the childe will bee very difficult and hard, unless the nekke of the wombe, to amend that defect, be anointed with oilor some other relaxing liquor. Moreover, when the childe is in the wombe, he voideth no excrements by the fundament, unleffe it be when at the time of the birth, the proper membranes and receptacles are burst by the thriving of the infant, for hee doth not take his meat at the mouth, wherefore the humacke is idl then, and doth not execute the office of turning the meats into Chylus, nor of any other concoction, wherefore nothing can goe downe from it into the guts. Neither have I told some infants borne without any hole in their fundament, so that I have beene constrained with a knife to cut in under the membrane or tunicle that grew over and stopped it. And how can such excrements be engendered, when the childe being in the wombe, is nourished with the more laudable portion of the membritall blood: therefore the issue or child is wont to yeeld or avoyd two kinds or sorts of excrements, so long as he is in the womb, that is to say, sweat and urine, in both which he swimmes: but they are serapated by themselves, by a certaine tunicle called Allantoises, as it may bee seene in kids, dogges, sheepe, and other brute beasts; for as much as in mankinde the tunicle Chorio and Allantoises or Extreminalis be all one membrane. If the woman bee great of a man childe, she is more merry, strong, and better coloured, all the time of her child bearing, but if of a woman childe, she is ill coloured because that women are not so hot as men.

The males begin to stirre within three moneths and an halfe, but females after: if a woman conceive a male child, she hathe all her right parts stronger to every work: wherefore they do begin to fet forwards their right foot first in going, & when they arise they lean on the right arme, the right dog will sooner swell and waxe hard; the male children stirre more in the right side than in the left, and the female children rather in the left than in the right side.

With what travell the Childe is brought into the world, and of the cause of this labour and travel.

When the naturall prefixed and prescribed time of child-birth is come, the childe being then growinge greater, requires a greater quantity of food: which when he cannot receive in sufficient measure by his navell, with great labour and striving hee endeavoureth to get forth: therefore then he is moved with a stronger violence, and doth breake the membranes wherein he is contained. Then the wombe, because it is not able to endure such violent motions, nor to sustaine or hold up the childe any longer, by reason that the conceptacles of the membranes are broken asunder, is relaxed. And then the childe pursiuing the aire which hee felteth to enter in at the mouth of the wombe, which is very wide and gaping, is carried with his head downwards, and so comes into the world, with great pain both unto it selfe, and also unto his mother, by reason of the tendernes of his body, & also by reason of the extension of the nervious necke of his mothers wombe, and separation of the bone called Os ilium from the bone called Os sacrum. For unleffe those bones were drawne in sunder, how could not only twinnes that cleave fast together, but also one childe alone, come forth at so narrow a passage as the necke of the wombe is? Not onely reason, but also experience confirmeth it, for I have opened the bodies of women prefently after they have
have died of travell in childe-birth, in whom I have found the bones of *ilium* to be drawne the breadth of one's finger from *os sacrum*; and moreover, in many unto whom I have been called being in great extremity of difficult and hard travell, I have not onely heard, but also felt the bones to crackle and make a noife, when I laid my hand upon the coccyx or rump, by the violence of the distention. Also honest ma-trons have declared unto me that they themselues, a few daies before the birth, have felt and heard the noife of those bones seperating themselves one from another with great paine. Also a long time after the birth, many doe feel great paine and ache about the region of the coccyx and *os sacrum*, so that when nature is not able to re-paire the dissolved continuity of the bones of *ilium*, they are constrained to halt all the daies of their life after. But the bones of the share called *os pubis*, I have never feene to be seperated, as many do also affirm. It is reported that in *Italy* they break the coccyx or rump in all maidens, that when they come to bee married they may beare children with the leffer travaile in childe-birth; but this is a forged tale, for that bone being broken, is naturally and of its owne accord repaired, and joyned to-gether again with a *callus*, whereby the birth of the childe will be more difficult and hard.

**CHAP. XIV.**

**Of the situation of the infant in the wombe.**

Reason cannot shew the certain situation of the infant in the wombe, for I have found it altogether uncertaine, variable and divers both in li-ving and dead women: in the dead by opening their bodies presently after they were dead, and in the living by helping them by the induftry of my hand, when they have been in danger of perishing by travell of child-birth: for by putting my hand into the womb, I have felt the infant comming forth, sometimes with his feet forwards, sometimes with his hands, and sometimes with his hands and feet turned backwards, and sometimes forwards, as the figure following plainly describeth.

I have often found them comming forth with their knees forwards, and sometime with one of the feet, and sometimes with their belly forwards, their hands and feet being lifted upwards, as the former figure sheweth at large.
Concerning the Generation of Man.

Sometimes I have found the infant coming with his feet downwards sliding aside, and sometimes headlong, stretching one of his arms downward out at length, and that was an Hermaphrodite, as the figure following plainly declareth.

One time I observed in the birth of twins, that the one came with his head forwards, and the other with his feet, according as here I have thought good to describe them.

In the bodies of women that died in travaile of child I have sometimes found children no bigger than if they had been but four months in the womb, situated in a round compass like a hoop, with their head bowed down to the knees, with both their hands under the knees, and their heels close to their buttocks. And moreover, I protest before God that I found a child being yet alive in the body of his mother (whom I opened to loome as hee was dead) lying all along stretched out, with his face upwards, and the palms of his hands joynted together, as if he were at prayer.

Chat. XV.

Which is the legitimate and natural, and which the illegitimate or unnatural time of child birth.

O all living creatures, except man, the time of conception and bringing forth their young is certain and definite, but the issue of man cometh into the world, sometimes in the seventh, sometimes in the eighth, and sometimes, which is most frequent, in the ninth moneth, sometimes in the tenth moneth, yea sometimes in the beginning of the eleventh moneth. Mansardi reports that Lucius Papirius the Pretor, the second heir commencing a suit, gave the possession of the goods away from him, being the mother of the child affirmed that she went thirteen moneths therewith, being there is no certain definite time of child-birth. The child that is borne in the first moneth cannot be long lived, because that at that time all his body or members are not perfectly finished or absolutely formed. In the seventh moneth it is proved by reason and experience that the infant may be long lived, but in the eight moneth it is said done or never long lived: the reason thereof is, as the Astronomers suppose, because that at that time Saturne ruleth, whole coldnesse and drynesse is contrary to the original of life: but yet the phisical reason is more true: for the physicians say that the child in the womb doth often times in the seaventh moneth strive to bee fet at liberty from the inclosure of the womb: and therefore it contendedeth and laboureth greatly, and so with labouring.
ring and striving it becometh weak, that all the time of the eight moneth it cannot recover his strength again, whereby it may renew his accustomed use of striving, and that some by such labouring and striving, hurt themselves, and so dye. Yet some strong and lusty women are thought to bring forth their children, being lively and strong, on the eight moneth, as Aristotle testifieth of the Egyptians, the Poets of the inhabitants of the Isle of Naxus, and many of the Spaniards. Furthermore, I cannot sufficiently marvel that the wombe, which all the time of child-bearing is so closed together, that one can scarce put a probe into it, unless it be happily by reason of superduration, or when it is open for a short time to purge itself, that presently before the time of child-birth, it should gape and waxe so wide, that the infant may passe through it, and presently after it to close again as if it had never been opened. But because that the travail of the first time of child-birth, is wont to be very difficult and grievous, I think it not unmeet that all women, a little before the time of their first travell, anoint and relaxe their privie parts with the unguent here described. Rx. sper. cett. 3 ii. ob. amygd. dul. 3 iv. cera alb. & medul. cervin. 3 iii. axung. an. & gallin. an. 3 i. tereb. vent. 3 ii. make thereof an ointment to anoint the thighs, privie parts and genitals. Furthermore, it shall not bee unprofitable, to make a truife or girdle of most thinne and gentle dog-skinne, which being also anointed with the same unguent, may serve very necessary for the better carrying of the infant in the wombe. Also bathes that are made of the decoction of mollifying herbs, are also very profitable to relaxe the privie parts a little before the time of the birth.

The natural & easie birth

That is supposed to bee a natural and easie birth, when the infant commeth forth with his head forwards, presently following the flux of the water; and that is more difficult, when the infant commeth with his feet forwards: all the other ways are most difficult. Therefore Mid-wives are to be admonished that as often as they shall perceive the infant to be comming forth none of those ways, but either with his belly or his backe forwards, as it were double, or else with his hands and feet together, or with his head forwards, and one of his hands stretched out, that they should turne it, and draw it out by the feet: for the doing whereof, if they be not sufficient, let them crave the assistance and helpe of some expert Chirurgeon.

CHAP. XVI.

Signes of the birth at hand.

Here will be great paine under the navell, and at the groines, and spreading therethine towards the Fleshes of the loines, and then especially when they are drawnne backe from the Os sacrum, the bones Iliac and the Coccyx are thrust outward, the genitals swell with paine, and a certaine fever-like shaking invades the body, the face waxeth red by reason of the endeavoure of nature, armed unto the expulsion of the infant. And when these signes appeare let all things be prepared ready to the child-birth. Therefore first of all let the woman that is in travell be placed in her bed conveniently, neither with her face upwars, not fitting, but with her backe upwars and somewhat high, that she may breath at more liberty, and have the more power or strength to labour. Therefore she ought to have her legs wide one from another, and crooked, or her heelles fome what bowed up towards her buttocks, so that she may lean on a staffe that must be placed overthwart the bed. There are some that do travell in a flooole or chair made for the purpose: others standing uprigh on their feet, and leaning on the poaft or pillar of the bed. But you must take diligent heed that you doe not exhort or perfwade the woman in travell to strive or labour to expell the birth before the forenamed signes thereof doe manifestly shew that it is at hand. For by such labour or pains she might be wearied or so weakened, that when she should strive or labour, she shall have no power or strength to doe. If all these things doe fall out well in the childe-birth, the businesse is to be committed to nature and to the Mid-wife. And the woman with child must onely bee admonished that when she feeeth very strong paine, that she presently
Concerning the Generation of Man.

Concerning the generation of Man. Presently therewith ftrive with most strong expression, shutting her mouth and nose if thee please, and at the same time let the mydwife with her hands force the infant from above downwards. But if the birth be more difficult and painefull, by reason that the waters wherein the infant lay are flowed out long before, and the womb be dry, this ointment following is to be prepared. R. buttres recentis fine fale in aqua artesiosia lori 3i, mucinae ficium femin. lini & albae cum aqua sabina extractae, an. 3i, olei linumum 3i. Make thereof an ointment, wherewith let the mydwife often annoynt the secret parts. Also this powder following may be prepared. R. Cinamom. cory. cafe. in fistul, dictamni an, 5i, fuch. albi ad pendreb omnium: make thereof a moft subtle and fine powder. Let the woman that is in extremity by reason of difficult and painfull travell in child-birth, take halfe an ounce thereof at a time with the decoction of linseed, or in white wine, for it will cause more speedily and cæfe child-birth.

Moreover, let the mydwise annoynt her hands with this ointment following as often as thee putte them into the necke of the wombe, and therewith also annoynt the parts about it. R. olei ex feminibus linum 5i, olei de castore 3i, gallsa mochata 3i, ladani 3i. make thereof a liniment. Moreover, you may provoke sneezing by putting a little pepper or white hellebore in powder into the nostrils. Linseed beaten, and given in a potion, with the water of Mugwort and Savine, is supposed to cause speedy deliverance. Also the medicine following is commended for the same purpose. R. cortis caffidiani, capparis 3 ii, cicer. rub. m, buliant cum vino albo & aqua sufficit. fab finee addendo sabina, 3i, in colatura pro dosi addi cinamomi 3i, cro. cifer. vi. make thereof a potion, which being taken, let sneezing be provoked, as it is above-said, and let her shut or close her mouth and nostrils.

Many times it happeneth that the infant commeth into the world out of the wombe, having his head covered or wrapped about with portion of the seedinc or umbicule wherein it is enclosed, especially when by the much, strong, and happy striving of the mother, he commeth forth together with the water wherein it lyeth in the wombe, and then the mydwives prophesy or foretell that the child shall be happy, because he is borne as it were with a hood on his head. But I suppose that it doth betoken health of body both to the infant and also to his mother; for it is a token of safe deliverance. For when the birth is difficult and painfull, the child never bringeth that membrane out with him, but remaineth behind in the passage of the genitals or secret parts, because they are narrow. For even so the Snake or Adder when she would cast her skinne thereby to renew her age, creepeth through some narrow or strait passage. Presently after the birth, the woman so delivered must take two or three spoonfuls of the cyle of sweet almonds extracted without fire, and tempered with sugar. Some will rather use the yolks of eggs with sugar, some the wine called Ipocras, others curdles or gelly: but always divers things are to be used, according as the patient or the woman in childbed shall be grieved, and as the Physician shall give counsel, both to cease and allay the furious torments and paine of the throwes, to recover her strength and nourish her.

Throwes come presently after the birth of the child, because that then the veins (nature being wholly converted to expulsion) cast out the relics of the membranall matter that hath beene suppressed for the space of nine moneths, into the wombe with great violence, which because they are groffe, slimie and dreggish, cannot come forth without great paine both to the veins from whence they come, and also unto the wombe whereinto they goe: also then by the conversion of that portion thereof that remaineth into winde, and by the undifcreet admiffion of the aire in the time of the child-birth, the wombe and all the secret parts will swell, unless it be prevented with some digesting, repelling or mollifying oile, or by artificiall rowling of the parts about the belly.

What a woman in travell must take presently after her delivery. The cause of the thowres. 

Prevention of Childbirth.
Concerning the Generation of Man.  

Chap. XVII.

What is to be done presently after the child is borne.

Recently after the child is borne, the midwife must draw away the succundine or afterbirth, as gently as she can: but if she cannot, let her put her hands into the womb, and so draw it out, separating it from the other parts; for otherwise, if it should continue longer, it would be more difficult to be gotten out, because that presently after the birth, the orifice of the womb is drawn together and closed, and then all the succundine must be taken from the child. Therefore the navell string must be tied with a double thread an inch from the belly. Let not the knot be too hard, lest that part of ye string which is without the knot should fall away sooner than it ought, neither too slack or loose, lest that an exceeding and mortal flux of blood should follow after it is cut off, and left that through it (that is to say, the navell string) the cold air should enter into the child's body. When the knot is so made, the navell-string must be cut in under the breadth of two fingers beneath it with a sharp knife. Upon the section you must apply a double linnen cloth dipped in oyle of Roses, or of sweet almonds, to mitigate the paine; for so within a few days after, that which is beneath the knot will fall away, being destitute of life and nourishment, by reason that the vein and artery are tied so close, that no life nor nourishment can come unto it: commonly all midwive do let it lye unto the bare belly of the infant, whereof commeth grievous paine and griping, by reason of the coldness thereof, which dyeth by little and little, as destitute of vital heat. But it were farre better to roule it in soft cotton or lint, until it be mortificd, and so fall away.

Those midwives do unadvisedly, who so soon as the infant is borne, do presently tie the navell-string and cut it off, not looking first for the voyding of the succundine. When all these things are done, the infant must be wiped, cleansed and rubbed from all filth and excrement with oyle of Roses or Myrtles. For thereby the pores of the skinn will be better sbut, and the habite of the body the more strengthened.

There bee some that wash infants at that time in warme water and red wine, and afterwards anoint them with the forenamed oyles. Others wash them not with wine alone, but Boyle therein red Roses and the leaves of Myrtles, adding therto a little farf; and then using this lotion for the space of five or sixe days, they not onely wash away the filth, but also resolve and digest, if there bee any hard or contused place in the infant's tender body, by reason of the hard travail and labour in child-birth. Their toes and fingers must be handled, drawn and bowed, and the joints of the arms and legsges must be extended and bowed for many days and oft, that thereby that portion of the excrementall humour that remaineth in the joints, by motion may be heated and resolved. If there bee any default in the members, either in conformation, construction or society with those that are adjoining to them, it must bee corrected or amended with speed. Moreover, you must looke whether any of the natural passages bee stopped, or covered with a membrane, as it often happeneth. For if any such cover or flop the orifices of the eares, nostrils, mouth, yard or womb, it must bee cut in funder by the Chyrurgion, and the passage must be kept open by putting in of tents, pessaries or defcendents, left otherwise they should joyn together againe after they are cut. If he have one finger more than hee should naturally, if his fingers doe cleave close together, like unto the secte of a Goose or Ducke, if the ligamentall membrane that is under the tongue bee more short and flither than it ought, that the infant cannot sucke, nor in time to come, speake, by reason thereof; and if there be any other thing contrary tonature, it must bee all amended by the industry of some expert Chyrurgion.

Many times in children newly borne, there sticketh on the inner side of their mouth and on their tongue, a certain chalkie substances, both in colour and consistence;
Concerning the Generation of Man.

this affect proceeding from the ditemperature of the mouth, the French men call it the white Cancer. It will not permit the infant to lick, & will shortly breed & degenerate into ulcers that will creepe into the jawes, and even unto the throat, and unlefe it bee cleaned speedily, will bee their death. For remedy whereof, it must be cleaned by detestives, as with a linnen cloth bound to a little fickle, and dipped in a medicine of an indifferent confidence made with oyle of sweete almonds, hony and sugar. For by rubbing this gently on it, the fist may bee mollified, and so cleaned or washed away.

Moreover it will bee very meete and convenient to give the infant one spoonefull of oyle of almonds, to make his belly loose and slippery, to asswage the roughneffe of the weafon and gullet, and to dissolve the tough phlegme, which caufeth a cough, and sometymes difficulty of breathing. If the eye lids cleave together, or they bee joined together, or agglutinated to the coats cornea or adna, if the watery tumour called hydrocele affect the head, then mufi they bee cured by the proper remedies formerly prescribed, against each diseafes.

Many from their birth have spots or marke, which the common people of France call Signes, that is, markes or signes. Some of these are plaife and equall with the skinne, others are raised up into little tumours, and like unto warts, some have haires upon them, many times they are smoothe, blacke or pale, yet for the most part red. When they arise in the face, they spread abroad thereon many times with great deformity. Many thinke the cause thereof to bee a certaine portion of the menstrual matter cleaving to the sides of the wombe, coming of a fresh flux, if haply the man doe yet use copulation with the woman, or else distilling out of the veins into the wombe, mixed and conccorporated, with the seedes at that time when they are concealed, infecting this or that part of the issue, being drawnne out of the feminall body, with their owne colour. Women referre the cause thereof unto their longing when they are with child; which may imprint the image of the thing they long for or desire, in the child or issue that is not as yet formed (as the force or power of imagination in humane bodies is very great:) but when the child is formed, no imagination is able to leave the impression of any thing in it, no more than it could cause hones to grow on the head of King Chypus as bee feene An old fable of prefently after he was returned from attentively beholding Bulls fighting togethether. Some of those spots bee curable, others not; as tho' that are great, and those that are on the lips, nostrils, and eye lids. But tho' that are like unto warts, because they are partakers of a certaine maligne quality and melancholick matter, which may bee irritated by endeavouring to cure them, are not to bee medicled with at all, for being troubled and angered, they loone turne into a Cancer (which they call Noi meaanger). Tho' that are curable are small, and in such parts as they may bee dealt withal without danger. Therefore they must bee pierced through by the roots with a needle and a thread, and so being lifted up by the ends of the thread, they must bee cut away, and the wound that remaith must bee cured according to the generall method of wounds.

There are some that suppose the red spots that are raised up into little knobbes and bunches, may bee washed away and confummed by rubbing and annoynting them often with menstrual blood, or the blood of the fecundine or after-birth. Tho' that are hariace and somewhat raised up like unto a Want or Moufe, must bee pierced through the roots in three or foure places, and straitly bound, so that at length being destitute of life and nutriment, they may fall away: after they are fallen away, the ulcer that remaith must bee cured as other ulcers are. If there bee any superfluous flesh remaining, it must bee taken away by applying Egyptianum, or the powder of mercury, and such like: but if it bee doubted that it commeth from the root of the tumour that may happenely remaine, it must bee burned away by the root with oyle of vircili or aquafortis.

There is also another kind of or sort of spots, of a livide or violet colour, coming especially in the face about the lips, with a soft, flackle, laxe, thimne, and un-painefull tumour, and the veins as if they were varieous round about it. This kind of tumour growth greater when it ariseth on children that are wayward and crying.
Concerning the Generation of Man. Lib. 24.

and in men of ripier yeares that are cholerick and angry, and then it will bee of a dittere colour, like unto a lappet or flap of flesh that hangeth over the Turkie cokes bill. When they have done crying, or ceaied their anger, the tumour will returne to his owne natural colour againe. But you must not attempt to cure it in people that are of these conditions.

CHAP. XVIII.

How to pull away the secundine or after-birth.

Suppose that they are called secundines, because they doe grieve the woman that is with child the second time, as it were a second birth: for if there bee severall children in the wombe at once, and of different sexes, they then have every one their severall secundines, which thing is very necessary to bee knowne by all myd wives. For they doe many times remaine behinde in the wombe when the child is borne, either by reason of the weakness of the woman in travell, which by contending and labouring for the birth of her child, hath spent all her strength: or else by a tumour rising suddenly in the necke of the wombe, by reason of the long and difficult birth, and the cold air unavoidably permitted to strike into the orifice of the wombe. For in the liberties of the ways or passagges are stopped and made more narrow, so that nothing can come forth: or else because they are doubled and folded in the wombe, and the waters gone out from them with the infants, so that they remaine as it were in a dry place: or else because they yet sticke in the wombe by the knots of the veins and arteries, which commonly happeneth in those that are delivered before their time. For even as apples which are not ripe, cannot bee pulled from the tree but by violence: but when they are ripe, they will fall off of their owne accord: so the secundines before the natural time of the birth can hardly bee pulled away but by violence: but at the prefixed natural time of the birth, it may easily be drawn away.

Many and grievous accidents follow the staying of the secundine: as suffocation of the wombe, often swooning, by reason that grosse vapours arise from the putrefaction unto the mydriFFE, heart and braine: therefore they must bee pulled away with swifte from the wombe, gently handling the navell, if it bee so possibly done. But if it cannot bee done so, the woman must bee placed as shee was wont when that the child will not come forth naturally, but must bee drawne forth by arte. Therefore the mydwife having her hand annoynted with oyl, must putte gently into the wombe, and finding out the navell thing, must follow it until it come unto the secundine, and if it does yet cleave to the wombe by the corollions, shee must shake and move it gently up and downe, that so when it is shaken and loosed, shee may draw it out gently: but if it should bee drawne with violence, it were to be feared lest that the wombe should also follow: for by violent attraction some of the vessels, and also some of the nervous ligaments, whereby the wombe is fastened on each side, may bee rent, whereof followeth corruption of blood shedde out of the vessels, and thence commeth inflammation, an abcesse or a mortall gangrene.

Neither is there leefe danger of a convulsion by reason of the breaking of the nervous bodies, neither is there any leefe danger of the falling downe of the wombs. For if that there bee any knots or clods of blood remaining together with the secundine, the mydwife must draw them out one by one, so that any may be left behinde.

Some women have voyded their secundine, when it could not bee drawn forth by any means, long after the birth of the child, by the necke of their wombe, piece-meale, rotten and corrupted, with many grievous and painefull accidents. Also it shall bee very requisite to provoke the endeavours of the expulsive faculty by ferumatories, aromatike fomentations of the necke of the wombe, by mollifying injections: and contrariwise, by applying such things to the nothills as yeeld a ranke favour.
Concerning the Generation of Man.

What things must be given to the infant by the mouth, before he be permitted to suck the Teat or Dugge.

That mothers ought to nurse or give sucke unto their owne children.

For a certain space after the birth, the milke will bee troubled, and the humours of the body moved: so that by long lying in the dugges, it will sicome to degenerate from its natural goodness, as the grossieneesse of it is somewhat congealed, the manifest heate in touching, and the yellow colour thereof testifyeth evidently. Therefore it is necessary that others should come in place thereof when it is sucked out, whereas with the infant may be nourished. But if the mother or the nurse chance to take any disease, as a Fever, Scouring, or any such like, let her give the child to another, to give it suck, lest that the child chance to take the nurse's diseases. And moreover, mothers ought to nurse their owne children, because for the most part they are farre more vigilant and careful in bringing up and attending their children, than hired and mercenary nurses, which doe not so much regard the infant,
as the same they shall have by the keeping of it, for the most part. Those that do not nurse their own children, cannot rightly be termed mothers; for they do not absolutely perform the duty of a mother unto their child, as Marci Aurelii the Roman Emperor was wont to say. For this is a certain unnatural, imperfect and half kind of a mothers duty, to bear a child, and presently to abandon or put it away as if it were forlorn: to nourish and feed a thing in their wombe (which they neither know nor see) with their owne bloud, and then not to nourish it when they see it in the world alive, a creature or reasonable foule, now requiring the help and sustentation of the mother.

Chap. XXI.

Of the care and choice of Nurses.

Any husbands take such pity on their tender wives, that they provide nurses for their children, that unto the pains that they have sustained in bearing them, they may not also add the trouble of nursing them: wherefore such a nurse must be chosen which hath had two or three children. For the dugges which have beene already sucked and accustomed to bee filled, have the veins and arteries more large and capable to receive the more milke. In the choyce of a nurse there are ten things to be considered very diligently: as, her age, the habit of her body, her behaviour, the condition of her milke, the forme, not only of her dugges or breasts, but also of her teats or nipples, the time from her child-birth, the sexe of her last infant or child, that she be not with child, that she bee found in perfect health. As concerning her age, shee ought not to bee under twenty five yeares, nor above thirty five: the time that is between is the time of strength, more temperate, and more wholesome and healthy, and least abounding with excremental humours. And because her body doth not then grow or encrease, shee must of necessity have the more abundance of bloud. After thirty five yeares in many the mensiruall fluxes do cease, and therefore it is to bee supposed that they have the leffe nutriment for children.

The nurse must alfo be of a good habit, or square or well set body, her breasts broad, her colour lively, not fat, nor leane, but well made, her flesh not soft and tender, but thick, and hard or strong, whereby the may be the more able to endure watching & taking of pains about the child; the nurse must not have a red or freckled face, but brown or somewhat shadowed or mixed with rednesse: for truly such women are more hot than those that are red in the face, by reason whereof they must needs concoct and turne their meate the better into bloud. For according to the judgment of Sextius Censorinus, as blackish or brownie ground is more fertill than the white; even so a browne woman hath more flore of milke. You must looke well on her head, lest shee should have the scurfie or running fores; see that her teeth bee not foule or rotten, nor her breath stinking, nor no ulcer nor sore about her body, and that she be not borne of goutie or leprous Parents.

Shee ought to bee quicke and diligent in keeping the childie neate and cleane, chaste, sober, merry, always laughing and smiling on her infant, often singing unto it; and speaking distinctly and plainly, for shee is the only mistresse to teach the childle to speake. Let her bee well mannered, because the manners of the nurse are participated unto the infant together with the milke. For the welpes of dogges, if they doe sucke Wolves or Lionedes, will become more fierce and cruell than others: contrariwise, the Lions whelpes will leave their savagehede and fiercenesses, if that they bee brought up and nourishe with the milke of any Bitch, or other tame beast. If a Goat give a Lambe sucke, the same Lambes wolle will be more hard than others: contrariwise, if a Sheepe give a Kyd sucke, the same Kydes haire will be more soft than another Kyds haire. She ought to be sober, and the rather for this cause, because many nurses being overloaded with wine & banqueting, often let their children unto their breasts to suck, and then fall asleep, and so suddenly irrangle or choak them.
Shee must abstaine from copulation: for copulation troubleth and moveth the humours and the bloud, and therefore the milke it selfe; and it diminisheth the quantity of milke, because it provoketh the mensurall fluxe, and caueth the milke to have a certaine strong and virous quality, such as we may perceive to breathe from them that are incendied with the fervent lust and desire of venery. And moreover, because that thereby they may happen to bee with childe, whereof paines and disorder doth both to her owne childe that is within her body, and also to the nurse child: to the nurse child, because that the milke that is sucketh will be worse and more depraveth than otherwise it would bee, by reason that the more laudable bloud after the conception remaineth about the wombe, for the nutrition and increasing of the infant in the wombe; and the more impure bloud goeth into the dugges, which breedeth impure or uncleane milke: but to the conceived childe, because it will caueth it to have scarce or of food, for, so much as the sucking childe sucketh, so much the child conceived in the wombe, wanteth.

Alfo hee ought to have a broad breaste, and her dugges indifferently bigge, nor flacke or hanging, but of a middle confidence, betwixte soft and hard; for such dugges will concerte the bloud into milke the better, because that in firme flesh the heart is more strong and compact. You may by touching try whether the flesh be solid and firm, as also by the dispersing of the veins, easily to bee seen by reason of their swelling and blewneffe, through the dugges, as it were into many streams or little rivelets; for in flesh that is loose and flacke, they lie hidden. Those dugges that are of a competent bignesse, receive or containe no more milke than is sufficient to nourish the infant. In those dugges that are great and hard, the milke is as it were suffocated, stopped or bound in, so that the childe in sucking can scarce draw it out: and moreover, if the dugges bee hard, the childe putting his mouth to the breaste, may strike his nose against it, and so hurt it, whereby hee may either refuse to sucke, or if hee doth proceede to sucke, by continual sucking, and placing of his nose on the hard breaste, it may become flat, and the nostrils turned upwards, to his great deformity, when hee shall come to age. If the teates or nipples of the dugges were suffocated, stopped or bound in, so that the infant cannot bee well used in sucking or in swallowing the milke.

Wee may judge of or know the nature and condition of the milke, by the quantity, quality, colour, favour and paste: when the quantity of the milke is so little, that it will not suffice to nourish the infant, it cannot bee good and laudable; for it argueth some diftemperature either of the whole body, or at least of the dugges, especially a hot and dry diftemperature. But when it super-aboundeth, and is more than the infant can spend, it exhausteth the juice of the nurses body; and when it cannot all bee drawn out by the infant, it cluttereth, and congealeth or corrupeth in the dugges. Yet I would rather with it to abound, than to bee defective, for the super-abounding quantity may bee pressed out before the child be fet to the breaste.

That milke that is of a meane confidence betweene thickne and thinne, is effectuall to bee the best. For it betokeneth the strenge and vigour of the faculty that engendreth it in the breaste. Therefore if one droppe of the milke bee laid on the naille of ones thumbe, being first made very clean and faire, if the thumbe bee not moved, and it runne frome the naille, it signifieth that it is watery milke: but if it stick to the naille, although the end of the thumbe bee bowed downwards, it sheweth that it is too grosse and thicke: but if it remaine on the naille so long as you holde it upright, and fall from it when you holde it a little aside or downwards by little and little, it sheweth it is very good milke: And that which is exquisitely white, is best of all. For the milke is no other thing than bloud made white.

Therefore, if it bee of any other colour, it argueth a default in the bloud: so that if it bee browne, it betokeneth melancholy bloud; if it bee yellow, it signifieth that the nurse child be preterieke bloud; if it bee wanne and pale, it betokeneth phlegmaticke bloud; if it bee somewhat red, it argueth the weakenesse of the faculty that engendreth the milke.
It ought to be sweet, fragrant, and pleasant in smell; for if it strike into the nostrils with a certaine sharpness, as for the most part the milke of women that have red hair and little freckles on their faces doth, it prognosticates a hot and cholericke nature: if with a certaine lowernesse, it portendeth a cold and melancholy nature. In tale it ought to be sweet, and as it were fuged, for the bitter, saltish, sharp, and tip- ticke, is naught. And here I cannot but admire the providence of nature, which hath caufed the blood wherewith the child should be nourisht to be turned into milke: which unless it were fo, who is he that would not turne his face from, and abhorre so grievous and terrible a spectacle of the childes mouth so imbred and befmeared with blood? What mother or nurfe would not be affmifht or amazed at every moment with the feare of the blood so often fliedde out, or sucked by the infant for his nourishment? Moreover, we should want two helps of sustentation, that is to say, butter and cheefe.

Neither ought the child to bee permitted to sucke within five or sixe dayes after it is borne, both for the reafon before alledged, and also because the hath need of so much time to refit quiet, and eafe himfelf after the pains he hath sufffained in his birth: in the meanes feaon the mother muft have her breads drawne by some maide that drinketh no wine, or else the may sucke or draw them herfelfe with an artifici- all instrument which I will describe hereafter.

That nurfe that hath borne a man child is to be preferred before another becaufe her milke is the better concocted, the heate of the male child doubling the mothers heate. And moreover, the women that are great with child of a male child, are better coloured, and in better strength, and better able to doe any thing all the time of their greatneffe, which proveth the fame: and moreover the blood is whythcan- motc lauddblc, and the railke better. Furthermore, it behoveth the Nurlctobce notbe a good brought on bcd, or to travcll at her juft and prefixed or naturall time: for when the child is born before his time of some inward caufe, it argutth that there is some de- fault lurking and hidden in the body and humours thereof.
Concerning the Generation of Man.

Chapter XXIII.

How to make pappe for children.

Apples are most meete food for children, because they require moist nourishment, and it must be answerable in thickness to the milk, that to it may it not be difficult to be concocted or digested. For pap hath these three conditions, so that it be made with wheaten flour, and that not crude but boiled: let it be put into a new earthen pot or pipkin, and so set into an oven at the time when bread is set there into to be baked, and let it remaine there until the bread be baked and drewne out, for when it is so baked it is leffe clammy and crude. Those that mixe the meale crude with the milk, are constrained to abide one of these discommodities or other, either to give the meale groffe & clammy unto the child, if that the pap be onely first boiled over the fire in a pippin or skillet so long as shall be necessary for
Concerning the Generation of Man.

for the milk, hence come obstructions in the mesaraic veins, and in the small
evines of the liver, fretting and worms in the guts, and the stone in the reines. Or
else they give the child the milk, defpoiled of its butterilk and whayish portion, and
the terresttrial and chelselike or curdlike remaining, if the pap be boiled so long as is
necessary for the meale: for the milke requirith not so great, neither can it suffer so
long boiliny as the meale. Tho'that doe use crude meale, and have no hurt by it,
are greatly bound to nature for to great a benefit. But Gelen will eth children to bee
nourished only with the nurnses milke, so long as the nurse hath enough to nourish
and feed it. And truly there are many children that are contented with milke only,
and will receive no pappe until they are three moneths old. If the child at any time
be colitive, and cannot void the excrements, let him have a cataplasm made with
one dramme of Aloes, of white and blacke Hellebore, of each fiftn,e grains, being
all incorporated in as much of an oxe gall as is sufficient, and extended or spread
on cotton like unto a pultis, as broad as the palm of ones hand, and so apply it upon
the navell warme: moreover, this cataplasm hath alo virtue to kill the worms in
the belly. Many times children have fretting of the guts, that maken them to cry,
which commeth of crudity. This must be cured by applying unto the belly twenty
or moist woole, macerated in oile of chamomill.

For the fretting of the guts in children.

If when the children teeth begin to grow, he chance to bite the nipple of the nurses
breast, there will bee an ulcer very contumacious and hard to be cured, because that
the fucking of the childe, and the rubbing of the cloaths doe keep it always raw: it
must be cured with fomentation, with allome water, and then prefently after the so-
mentation putting thereupon a cover of lead, made like unto a hat, as they are here
described, with many holes in the topppe, whereat both the milke, and also the fa-
nious matter that commeth from the ulcers may goe out, for lead itself will cure
ulcers.

The figure of leaden Nippes to be put upon the Nipple or Teat of the Nurse
when it is ulcerated.

Children may be caufed to cease their crying foure manner of wales, that is to say,
by giving them the teart, by rocking them in a cradle, by singing unto them, and by
changing the cloaths and swathes wherein they are wrapped. They must not bee
rocked too violently in the cradle, lest that the milke that is sucked shoulde be corrup-
ted by the too violent motion, by reacon whereof they must not bee handled violent-
ly any other way, and not altogether prohibited or not suffered to cry. For by cry-
ing the breath and lungs are dilated and made bigger and wider, the natural parts
the stronger, and the braine, nostrills, the eyes and mouth are purged, by the tears
and flux that come from the eyes and nostrills: But they must not bee permitted
to cry long or fiercely, for feare of breaking the production of the Peritonum, and
thereby cauling the falling downe of the guts into the cod, which rupture is called
of the Greeks Enterocèle, or of the caule, which the Greekes call Epiplocele.
Concerning the Generation of Man.

Chap. XXIII.

Of the weaning of children.

Any are weaned in the eighteenth moneth, some in the twentieth, but all, or the most part, in the second yeare, for then their teeth appear must be weaned by whose presence nature seemeth to require some harder meate than milke or pappe, wherewith children are delighted, and will feed more earnestly thereon. But there is no certaine time of weaning of children. For the teeth of some will appeare sooner, and some later; for they are prepared of nature for no other purpose than to chaw the meat. If children bee weaned before their teeth appeare, and bee fed with meate that is somewhat hard and sylde, according to the judgement of Avicena, they are incident to many diseases comming through crudity, because the stomacke is yet but weak, and wanteth that preparation of the meates which is made in the mouth by chawing; which men of ripe yeres cannot want without offence. When the child is two yeres old, and the teeth appeare, if the child more vehemently desire harder meates, and doth feed on them with pleasure & good success, he may be safely weaned; for it cannot be supposed that he had this appetite of hard meates in vaine, by the instinct of nature. Yet he may not be weaned without such an appetite, if all other things be correspondent, that is to say, his teeth and age, for those things that are eaten without an appetite, cannot profit. But if the child be weak, sickly, or feeble, he ought not to be weaned. And when the season time of weaning commeth, the nurse must now and then use him to the teat whereby he may leave it by little and little, and then let the teate be anointed or rubbed with bitter things, as with Aloes, water of the infusion of Colocynthis, or worme wood, or mustard steeped in water, or such like. Children that are feably in their heads, and over all their bodies, and which void much secrete at their mouth and nostrils, and many excrements downwards, are like to be strong and sound of body; for so they are purged of excrementall humours: contrariwise, those that are clean and fair of body, gather the matter of many diseases in their bodies, which in proccede of time will brake forth and appeare. Certainly by the sudden falling of such matters into the backbone, many become crookedbacked.

Chap. XXV.

By what signes it may bee knowne whether the child in the wombe bee dead or alive.

F neither the Chirurgians hand, nor the mother can perceive the infant to move, if the waters bee flowed out, and fecur dine come forth, you may certainlie affirm that the infant is dead in the wombe, for this is the most infallible signe of all others: for because the child in the wombe doth breathe but by the artery of the navell, and the breath is received by the Cotyledon of the arteries... When the fecundine is excluded before the child, you may take it for a certaine death thereof: when the child is dead, it will be more heavie to the mother than it was before when it was alive, because it is now more suftained by the spirits and faculties wherein before it was governed and ruled, for so we fee dead men to be heavier than those that are alive, & men that are weak through hunger and famine to be heavier than when they are well refrest, and also when the mother enclineth her body any way, the infant falleth that way also even as it were a stone. The mother is also vexed with sharp paine from the privities, even to the navell, with a perpetual desire of making water, and going to stoole, because that nature is wholly bulled in
Concerning the Generation of Man.

L I B. 24.

The expulsion or avoidance of that which is dead: for that which is alive will expell the dead to farre as it can from it selfe, because the one is altogether different from the other; but likewise, if any thing, conjoynes and unitesthings together: the genitalis are cold in touching, and the mother complaineth that she feeleth a coldness in her womb, by reason that the heat of the infant is extinguished, wherewith before her heate was doubled: many stiled excrements come from her, and also the mothers breath stinketh, the womaneth often, all which for the most part happen within three days after the death of the child: for the infantes body will sooner corrupt in the mothers womb than it would in the open aire, because that, according to the judgement of Galen, all hot and moist things, being in like manner enclosed in a hot and moist place, especially if by reason of the thickenesse or straitenesse of the place they cannot receive the aire, will speedily corrupt. Now by the rising up of such vapours from the dead unto the braine and heart, such accidents may soon follow, her face will be clean altered, seeming livid and ghastly, her dugs fall and hang loose and lank, and her belly will be more hard and swolneth than it was before. In all bodies that are putrefying, the natural heat vaniseth away, and in place thereof succeedeth a putrefied heat, by the working whereof the putrefied and dissolved humours are dispersed into vapours; and converted into wind, and those vapours, because they are so muche dispensed into vapours, and converted into wind, do so puffe up the putrefied body into a greater bignesse. Y ou may note the same thing in bodies that are gangrenate, for they cast forth many sharpe vapours, yet nevertheless they are swolneth and puffed up.

Now so soon as the Chirurgian shall know that the child is dead by all these forenamed signes, he shall with all diligence endeavour to save the mother speedily as hee can, and if the Physicians cannot prevail with potions, baths, fumigations, hemorrhatories, vomits, and liniments appointed to expelle the infant, let him prepare himselfe to the work following; but first let him consider the strength of the woman, for if he perceive that shee be weake and feeble by the smallnesse of her pulse, her small, kidoraeand cold breathing, and by the altered and death-like colour in her face, by her cold sweats, and by the coldnesse of the extreme parts, let him abstaine from the worke, and only affirm that shee will dye shortly; contrariwise, if her strength be yet good, let him with all confidence and industry deliver her on this wise from the danger of death.

CHAP. XXVI.

Of the Chyrurgical extraction of the child from the wombe either dead or alive.

Herefore first of all the aire of the chamber must bee made temperate, and reduced unto a certaine mediocrity, so that it may neither be too hot nor too cold. Then she must be aptly placed, that is to say, overhwarth the bed side, with her buttockes somewhat high, having a hard stuffed pillow or bolstfer underthem, so that she may be in a meane figure of situation, neither sitting altogether upright, nor altogether lying along on her backe; for so she may rest quietly, and draw her breath with ease, neither shall the ligaments of the womb be extended so as they would if shee lay upright on her backe, her heeles must bee drawn up close to her buttocks, and there bound with broad and soft linnen rowiers. The rowier must first come about her neck, and then croste wise over her shoulders, and so to the feet, and there it must croste again, and so be rowled about the legs and thighs, and then it must be brought up to the necke againe, and there made fast, so that she may not be able to move her selfe, even as one should be tyed when he is to be cut of the stone. But that shee may not bee wearied, or left that her body should yeeld or finke downe as the Chirurgian draweth the body of the infant from her, and so hinder the worke, let him cause her feet to bee fet against the side of the bed, and

The figure of the woman that is weake.
and then let some of the strong standers by hold her fast by the legs and shoulders. How the Chirurgeon ought to prepare himself and his patient to the drawing out of the child from the womb.

Then that the air may not enter into the womb, and that the work may be done with the more decency, her privie parts & thighs must be covered with a warm double linnen cloath. Then must the Chirurgeon, having his nails closeley pared, and his rings (if hee were any) drawn off his fingers, and his armes naked, bare, and well anointed with oyle, gently draw the flappes of the necke of the wombe aunder, and then let him put his hand gently into the mouth of the wombe, having first made it gentle and slippery with much oyle, and when his hand is in, let him finde out the forme and situation of the childe, whether it be one or two, or whether it be a Mole or not. And when he findeth that he commeth naturally, with his hand toward the mouth or orifice of the wombe, he must lift him up gently, and so turne him that his head may come forwards, and when he hath brought his feet forwards, he must draw one of them gently out at the necke of the wombe, and then hee must binde it with some broad and soft or silken band a little above the heele with an indifferent slack knot, and when he hath bound it, he must put it up againe into the wombe, then he must put his hand in againe, and finde out the other foote, and draw it also out of the wombe, and when it is out of the wombe, let him draw out the other againe whereunto he had before tyed the one end of the band, and when hee hath them both out, let him join them both clofe together, & so draw them both out of the orifice of the womb.

Also other women or Midwives may help the endevour of the Chirurgeon, by preffing the patients belly with their hands downwards as the infant goeth out: and the woman her selfe by holding her breath, and drolling her mouth and nostrills, and by driving her breath downwards with great violence, may very much help the expulsion. I wish him to put backe the foot into the wombe againe after he hath tyed it, because if he should permit it to remain in the necke of the womb, it would hinder the entrance of his hand when he puttheth it in to draw out the other. But if there bee two children in the womb at once, let the Chirurgeon take heed left that he take not of either of them a legge, for by drawing them so, he shall profit nothing at all, and yet exceedingly hurt the woman. Therefore that he may not be deceived, when he hath drawn out one foot and tied it, and put it up again, let him with his hand follow the band wherewithall the foot is tyed, and soe out of the foot, and then to the grone of the childe, and then from thence he may finde out the other foot of the fame child: for if it should happen otherwise, he might draw the legges and the thighes out, but it would come no further, neither is it meet that hee should come out with his armes along by his sides, or bee drawn out on that sort, but one of his armes must bee stretched ouer above his head, and the other down by his side, for otherwiser the orifice of the womb when it were delivered of such a groste trunke, as it would be when his body should be drawn out with his armes along by his sides, would fo shrinke and draw it selfe when the body should come unto the necke, onely by the accord of nature requirring union, that it would strangel and kill the infant, so that hee cannot be drawn there-hence unleffe it bee with a hooke put under, or fastened under his chinne, in his mouth, or in the hollownesse of his eye. But if the infant lyeth as if hee would come with his hands forwards, or if his hands bee forth already, so that it may seeme hee may bee drawn forth easilie that way, yet it must not be so done; for fo his head would double backwards over his shoulders, to the great danger of his mother. Once I was called unto the birth of an infant, whom the midwives had assayed to draw out by the arm, so that the arm had been so long forth that it was gangrenate, whereby the child died, I told them presently that his arm must bee put in againe, and hee must bee turned otherwise. But when it could not bee put backe by reason of the great swelling thereof, and also of the mothers genitals, I determined to cut it of with an incision knife, cutting the muscles as near as I could to the shoulde, yet drawing the flesh upwards, that when I had taken off the bone with a pair of cutting pincers, it might come downe againe to cover the shivered end of the bone, left otherwiser when it were thrust in againe into the wombe, it might hurt the mother. Which being done, I turned him with his feete forwards, and drew him out as is before sayd. But if the tumour either naturally or by some accident...
accident, that is to say, by putrefaction, which may perchance come, be so great that hee cannot bee turned according to the Chirurgions intention, nor be drawn out according as hee lyeth, the tumour must bee diminished, and then hee must bee drawne out as is aforesaid, and that muss bee done at once. As for example, if the dead infant appeare at the orifice of the wombe, which our myndwifes call the Garland, when it gapeth, is open and dilated, but yet his head being more great and puffed up with winde so that it cannot come forth, as cauful to bee fo through that disaese which the Greeks call Macrophacephalous the Chirurgion must fallten a hooke under his chinne, or in his mouth, or else in the hole of his eye, or else, which is better and more expedient, in the hinder part of his head. For when the feull is fo opened, there will bee a paffage whereat the winde may passe out, and so when the tumour falleth and decreaseth, let him drawe the infant out by little and little, but not rashly, lest hee shoule break that whereon he hath taken hold; the figure of those hookes is thus.

But if the breast bee troubled with the like fault, the hookes muss bee fastened about the chanell bone: if there bee a Dropie or a Tympany in the belly, the hooks muss bee fastened either in the short ribs, that is to say, in the muscles that are between the ribbes, or especially, if the diseafe doe alfo descend into the feette, about the bones that are above the groine; or else putting the crooked knife here pictured into the wombe with his left hand, let him make incision in the childs belly, and so get out all his entrals by the incision, for when hee is so bowedell, all the water that cauful the dropie will out. But the Chirurgion muss do none of all these things but when the child is dead, and the woman that travellth in such danger that hee cannot otherwise be holpen.

But if by any meanes it happeneth that all the infants members bee cut away by little and little, and that the head onely remaineth behind in the wombe, which I have sometimes against my will, and with great sorrow see, then the left hand being anointed with oyle of Lillies or freth butter muss bee put into the wombe, wherewith the Chirurgion muss find out the mouth, putting his fingers into it; then with his right hand hee muss put up the hooke, according to the direction of the left hand, gently, & by little & little, and so fasten it in the mouth, eye, or under the chin, and when hee hath firmly fixed or fastened it, hee muss therewith drawe out the head by little and little, for fear of loosening or breaking the part whereon hee hath hold. In stead of this hooke you may use the instruments that are here describ'd.
concerning the generation of man.

bed, which therefore I have taken out of the chirurgery of Francis Dalechamps, for they are so made, that they may easily take hold of a sphericall and round body with the branches, as with fingers.

Gryphons Talons, that is to say, instruments made to draw out the head of a dead infant that is separated in the womb from the rest of the body.

But it is not very easy to take hold on the head when it remaineth alone in the womb, by reason of the roundness thereof, for it will flip and slide up and down, unless the belly be pressed down, and on both sides, thereby to hold it unto the instrument, that it may with more facility take hold thereon.

Why the head being alone in the womb, is more difficult to be drawn out.

chap. xxvii.

what must be done unto the woman in travell presently after her deliverance.

Here is nothing so great an enemy to a woman in travell, especially to her whole child is drawn away by violence, as cold; wherefore with all care and diligence she must be kept and defended from cold. For after the birth, her body being void and empty, doth easily receive the ayre that will enter into every thing that is empty, and hence she waxeth cold; her womb is distended and puffed up, and the orifices of the vessels thereof are shut and closed, whereof commeth suppression of the after-birth, or other after purgations. And thereof commeth many grievous accidents, as hysterical suffocation, painfull fretting of the guts, feavers, and other mortal diseases.

What woman soever will avoyde that discommodity, let her hold her legs or thighs aroffe, for in so doing, these parts that were seoperated will bee joyned and close together againe. Let her belly bee also bound or rowled with a ligature of an indifferent breadth and length, which may keep the cold ayre from the womb, and also prevent the bloud out that is contained in all the substance thereof. Then give her some Capon broth or Caudle, with Saffron, or with the powder called Pulver duce, or else bread toasted and dipped in wine wherein spice is brewed for to restore her strength, and to keepe away the fretting of the guts. When the succundine is drawn out, and is yet hot from the womb, it must bee layd warme unto the region of the womb, especially in the winter; but in the summer, the hot skinne of a Weather newly killed must be laid unto all the whole belly, and unto the region

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region of the loytes. But then the curtains of the bed must be kept drawn, and all the windows and doors of the chamber must be kept shut with all diligence, that no cold ayre may come unto the woman that travelleth, but that thee may lie and take her rest quietly. The Weathers skinne must be taken away after that it hath lyen five or sixe hours; and then all the region of her belly must be annointed with the oyntment following.

R.  fustomatis Ceti, 5i. oeli amygdal, dulcis & hypericon, an. 5i. 6.  scwi bircini. 5i. oeli myristior, 5i. cer. a nova quantum sufficit, make thereof an oyntment, wherewith let her bee annointed twice in the day: let a plaster of Galbanum bee applyed to the navel, in the middel whereof put some few grains of Civet or Muske, so that the smell of the plaster may not strike up into her nostrils. Then let this medicine following bee applyed, commonly called Tela Guatlerina.  R.  cera nucis 3iii. fustomatis Ceti, 5i. b. terebinthi.  venetian aqua refusa 3iii. oeli amygdal, dulcis & hypericon ann, 5i. oeli myristch. & myristin, an. 5i. axungiae cervi 3i. 6. make them all together, and when they are melted, take it from the fire, and then dippe a linnen cloth therein, as bigge as may serve to fit the region of the belly, whereunto it is to bee applied. These remedies will keep the externall region of the belly from wrinkling.

But of all other, the medicine following excelleth.  R.  limacum rub, 6i.  florums anthos quart, 3iii. let them bee cut all in small pieces, and put into an earthen pot well ncaled with lead, and close stopped, then let it bee set in the dung of horses for the space of forty dayes, and then bee presset and strained, and let the liquor that is strained out bee kept in a glasse well covered, and set in the sunne for the space of three or foure dayes, and therewith annoynt the belly of the woman that lyeth in child-bed. If thee greatly tormentet with throws, let the powder following bee given unto her.  R.  annis conditi 3ii. nucis moschat. cornv cervi aph, 3i. 1i. nucorum dactylor, 3ii. legni aloes & cinamomi an. 3i. make thereof a moft subtle powder, let her take 5i. thereof at once with white wine warme. Or,  R. rad. confolida major. 5i. 8. nucorum pericorum, nucis moschat. an. 3i. carab. & ambra grae. gra. 3iii. make thereof a powder, let her take one dramme thereof at a time with white wine, or, if shee have a fever, with the broth of a Capon. Let there bee hot bagges applyed to the genitalis, belly and raynes; these bagges must bee made of miller and oastes fryed in a frying-pan with a little white wine.

But if through the violence of the extracion the genital parts bee torn, as ancient writers affirme it hath come to passe, so that the two holes, as the two holes of the privie parts and of the fundament have beene torn into one, then that which is rent must bee stuffed up, and the wound cured according to art. Which is a most unfortunate chance for the mother afterwards, for when shee shall travell again, shee cannot have her genital parts to extend and draw themselves in againe by reason of the scarre. So that then it will bee needfull that the Chirurgion shall againe open the place that was cicatrized, for otherwise shee shall neverbee deliverd, although shee strive and contend never so much. I have done the like cure in two women that dwelt in Paris.

Chap. XXVIII.

What cure must bee used to the Dugges and Teates of those that are brought to bed.
Concerning the Generation of Man.

Concerning the Generation of Man.

The leaves of brooke-lime, creffes and boxe boyled together in urine and vinegar, are thought a present remedy for this purpose, that is to say, to draw the milke from the breasts. And others take the clay that falleth downe into the bottome of the trough wherein the grindstone, whereon swords are ground, turneth, and mixe it with oyle of rofes, and apply it warme unto the dugges, which in short space, as it is thought, will affwage the paine, stay the inflammation, and drive the milke out of the dugges. The decoction of ground ivie, Perwincle, Sage, redde Rofes and roach Alome being prepared in oxycrate, and ufed in the forme of a fomentation, is thought to ferme the like effecte: the like vertue have the lees of red wine, applyed to the dugges with vinegar, or the diffilled water of unripe Pine-apples applyed to the breasts with linen clothes wet therein, or hemlocke beaten and applyed with the young and tender leaves of a gourd.

This medicine following is approved by use: Take the leaves of Sage, Smal-lage, Rue, and Chervill, and cut or chop them very small, and incorporate in vinegar and oyle of rofes, and fo apply it warme to the breast, and renue it twice a day. In the meane time let Cupping-glasses bee applyed to the inner side of the thigh and groine, and alfo above the navell. For this is very effectuall to draw the milke out of the breasts into the wombe by the veins, whereby the wombe communicateth with the breasts. Moreover, they may let children or little wepies fucce their breafts, whereby they may draw out the milke that is fixt fast in their dugges, in deed whereof wee have invented this indument of glasse, wherewith, when the broader orifice is fastened or placed on the breast or duggle, and the pipe turned upwards towards her mouth, shee may fucce her owne breasts her selfe.

In steede of this indument, a violl of glasse being firft made warme, and fome mouth thereof applyed to the nipple or teat, by reafon of the heat and wide-nesse thereof will draw the milkes forth into the bottome thereof, as it were by a certaine fucking. The after purgations being firft evacuated, which is done for the most part within twenty dayes after the birth, if the woman bee not in danger of a feaver, nor have any other accident, let her enter into a bath, made of mar-jerome, mintes, fage, rofennery, mugwurt, agrimonie, pennyroyall, the flowers of chamomile, melilote, dill, being boyled in moft pure and cleare running water. All the day following let another fuch like bath bee prepared, whereunto let thofe things following bee added. R. farina fabarum & aven. an. b. i. farin, orbi, lu-pinor. & gland. an. b. i. aluminis rob. sili. salis com. b. ii. gallarum, nucum cu-presti, an. sili. rofar. rub. m. vi. chariophyl, nucum moschat. an. sii. byole them all in common water, then few them all in a cleane linen cloth, as it were in a bagge, and caft them therein into the bath wherein from red hot hath bene extinguijhed, and let the woman that hath lately travelled fitt downe therein fo long as shee pleareth, and when shee commeth out, let her bee layd warme in bedde, and

The forme of a little glasse, which being put on the nipple, the woman may fucce her owne breasts.
Concerning the Generation of Man.

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and let her take some prepared Orange pill, or bread toasted and dipped in Ipocras, or in wine brewed with spices, and then let her sweate, if the sweate will come forth of its own accord.

On the next day let astringent fomentations be applied to the privates, or the parts:

Astringent fomentations for the private parts.

A distilled liquor to draw together the bag, that are basic and illadescent.

The distilled liquor following is very excellent and effectual to confirm and to draw in the cusses, or any other loose parts. R. Charybdis. Nux moschat. Manna cupræsi. An. 3 i b. Mastic. 3 ii. Alum. roche. 3 i b. Glandium & corticium quercus. An. 2 b. Saffar. Rub. m. i. Cæ. granat. 3 ii. Terra sigillat. 3 i. Cæ. cernovus. 3 ii. Myrrh. gummi dracon. An. 3 b. Bals. armeni. 3 ii. Iris florent. 3 i. Saffar. berber. Hyppuri. an. m. b. Conquiscentor ovinis. & maccenitri statici divorum divers. An. 3 b. b. Aquæ serur. b b. Provisorium syrur. Mespilorum. Pomorium quercorum, & 2 b. Aquæ salvorum. Acet. denique fortis. 3 iv. afterward distill it over a gentle fire, and keep the distilled liquor for your use, wherewith let the parts be fomented twice in a day. And after the fomentation, let women clothes or ruffs of linden cloth be dipped in the liquor, and then pressed out and laid to the place. When all these things are done and past, the woman may again keep company with her husband.

CHAP. XXIX.

What the cause of difficult and painfull travail in child-birth are.

The causes of difficult child-birth that are in the woman that travaileth.

The passions of the mind hinder the birth.

The causes of difficult child-birth that are in the infant.

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Concerning the Generation of Man.

annexed thereto, if it be very weake, if when the waters are flowed out, it doth not move or stirre, or offer its selfe to come forth. Yet notwithstanding, it happeneth sometimes that the fault is neither in the mother nor the childe, but in the are, which being cold, doth fo binde, conceale and make stiffe the genitall parts, that they cannot bee relaxed : or, being contrariwise too hot, it weakeneth the woman that is in travell, by reason that it wasteth the spirits, wherein all the strength consisteth: or in the ignorant and unexpert my drwifhe, who cannot artificially rule and governe the endeavours of the woman in travell.

The birth is wont to bee easie, if it bee in the due and prefixed natural time, if the childe offer himselfe lustily to come forth with his head forwards, presently after the waters are come forth, and the mother in like manner lusty and strong : those which are wont to bee troubled with very difficult child-birth, ought a little before the time of the birth, to goe into a halfe tub filled with the decoction of mollifying roots and seeds, to have their genitals, wombe, and necke thereof to bee annointed with much oylc, and the intestines that are full and loaded must bee unburr hened of the excrements, and then the expulsive faculty provoked with a sharpe glyster, that the tumours and swellying of the birth concurring therewith, the more easie exclusion may be made. But I like it rather better, that the woman in travell shold be placed in a chair that hath the backe thereof leaning backwards, than in her bed, but the chair must have a hole in the bottome, whereby the bones that must be dilated in the birth, may have more freedome to clofe themselves againe.

The causes of Abortion or untimely birth.

Abortion or untimely birth is one thing, and effluxion another. They call abortion the sudden exclusion of the childe already formed and alive, before the perfect maturity thereof. But that is called effluxion, which is the falling downe of seeds mixed together and coagulated but for the space of a few dayes, onely in the formes of membranes or sinewes, congealed bloud, and of an unshapen or deformed piece of flesh, the mydwives of our countrey call it a false branch or budde. This effluxion is the cause which is the caufe great paine and most bitter and cruelle torment to the woman ; leaving behind it weakness of body farre greater than if the childe were borne at the due time. The causes of abortion or untimely birth, whereof the the childe is called an abortive, are many, as a great scouring, a strangury joyned with heat and inflammation, sharp fretting of the guts, a great and continuall cough, exceeding vomiting, vehement labour in running, leaping, and dauncing, and by a great fall from on high, carrying of a great burthen, riding on a trotting horfe, or in a Coach, by vehement, often and ardent copulation with men, or by a great blow or stroke on the belly. For all these & such like vehement and inordinate motions dissiple the ligaments of the wombe, and fo cause abortion or untimely birth.

Also whatsoever presseth or girdeth in the mothers belly, and therewith also the wombe that is within it, as are those Ivory or Whale-bone buskes, which women weare on their bodies, thereby to keepe downe their bellies by thefe and such like things the childe is letted or hindred from growing to his full strength, so that by expression, or as it were by compulsion, hee is often forced to come forth before the legitimate and lawfull time. Thundering, the noyse of the shooting of great Ordnance, the found, and vehement noyse of the ringing of Bells constraine women to fall in travell before their time, especially women that are young, whose bodies are soft, flake and tenderer than those that bee of riper yeaeres. Long and great fasting, a great fluxe of bloud, especially when the infant is grown somewhat great : but if it bee but two moneths old, the danger is not so great, because then hee needeth not so great quantity of nourishment, also a long disease of the mother, which consumeth the bloud, caueth the childe to come forth being destitute of store.
Concerning the Generation of Man.  

store of nourishment before the fit time. Moreover, fulness, by reason of the eating great store of meetes, often maketh or caueth untimely birth, because it depraveth the strength, and prefetcheth down the child; as likewise the use of meates that are of an evil juice, which they lutf or long for. But bathes, because they relate the ligaments of the wombe, and hot houles, for that the fervent and choaking ayre is received into the body, provoke the infant to strive to goe forth to take the cold ayre, and to caufe abortion.

What women ever, being indifferently well in their bodies, travell in the second or third moneth without any manifest cause, those have the Cotylidones of their womb full of filth and matter, and cannot hold up the infant, by reason of the weight thereof, but are broken: Moreover, sudden or continual perturbations of the minde, whether they bee through anger or feare, may caueth women to travell before their time, and are accounted as the causes of abortions, for that they caueth great and vehement trouble in the body. Thofe women that are like to travell before their time, their dugs will wax little: therefore when a woman is great with child, if her dugs suddenly wax small or flender, it is a signe that shee will travell before her time; the cause of such shrinking of the dugs is, that the matter of the milke is drwanne back into the wombe, by reason that the infant wanteth nourishment to nourish and fuel cour it withall. Which fearfully the infant not long abiding, striveth to goe forth to seek that abroad which he cannot have within, for among the causes which do mak the infant to come out of the wombe, those are most usually named with Hippocrate, the necessitie of a more large nutriment and aire.

Therefore if a woman that is with child have one of her dugs small, if she have tw. children, she is like to travell of one of them before the full and perfect time: so that if the right dug be smal, it is a man child, but if it be the left dug it is a female. Women are in faire more paine when they bring forth their children before the time, than if it were at the full and due time, because that whatsoever is contrary to nature, is troublesome, painfull, and also ofentimes dangerous. If there be any error committed at the first time of child-birth, it is commonly seene that it happeneth always after at each time of child-birth. Therefore, to find out the causes of that error, you must take the counsell of some Physician, and after his counsell ever deavour to amend the same. Truly this plaster following being applyed to the reine doth conforme the wombe, and lay the infant therein. R. ladans 5 ii, galang. 5 i, nuc moschis, nucis cupressi, bolt armeni, terra sigill. sanguin. dracen. balans. an. 56. aca tis, spidorum, hypoferid. an. 5 i. mastich. myrrhae, an. 5 ii. gummi arabici. 5 i. terebinth. uenem. 5 ii. pes navalis. 5 i. 8. cera quadam sufficit, fiat emplast, secundum artes. spread it for your use upon leather. If the part begin to itch, let the plaster be taken away, & in stead thereof use unguent. resiat. or refygit. Galen. or this that followeth. R. olei myritini, masticy, cydonier. an. 5 i. hypocaust. bolt armen. sang. dracen. acetis. an. 5 i. font. citeris 8. cera quant. suff. make thereof an oyntment according unto art. There are women that bear the child in their wombe ten or eleven whole moneths, and such children have their conformation of much and large quantity of feede: wherefore they will bee more bigge, great and strong, and therefore they require more time to come to their perfection and maturity, for those fruits that are great will not bee foone ripe as those that are small. But children that are small and little of body do often come to their perfection and maturity in feven or nine moneths: if all other things are correspondent in greatness and bignesse of body, it happeneth for the most part that the woman with child is not delivered before the ninth moneth bee done, or at the least wife in the fame moneth. But a male child will bee commonly borne at the beginning, or a little before the beginning of the fame moneth, by reason of his engraved heat which causeth maturity and ripeness. Furthermore, the infant is sooner come to maturity and perfection in a hot woman than in a cold, for it is the property of heat to ripen.
Concerning the Generation of Man.

CHAP. XXXI.

How to preserve the infant being in the womb, when the mother is dead.

All the signs of death appear in the woman that lieth in travell, and cannot be delivered, there must then be a Chirurgian ready and at hand, which may open her body so soon as she is dead, whereby the infant may be preserved in safety; neither can it be supposed sufficient if the mothers mouth and privie parts be held open, for the infant being enclosed in his mothers womb, and compassed with the membranes, cannot take his breath, but by the contractions and dilatations of the artery of the navell. But when the mother is dead, the lungs do not execute their office and function: therefore they cannot gather in the aire that compasseth the body by the mouth or arteria venalis: for if the heart want aire, there cannot bee any in the great artery which is called arteria sorta, whose function it is to draw it from the heart; also by reason thereof it is wanting in the arteries of the wombe, which are as it were the little conduits of that great artery, whereinto the aire that is brought from the heart is derived, and floweth in unto the little ones of all the body, and likewise of the womb. Wherefore it must of necessity follow that the aire is wanting to the conduits of the fucundines, to the artery of the infants navell, the iliacke arteries also, and therefore unto his hearth, and to unto all his body: for the aire being drawn by the mothers lungs, is accustomed to come to the infant by this continuation of passages. Therefore because death maketh all the motions of the mothers body to cease, it is farre better to open her body so soon as she is dead, beginning the incision at the cartiladge, Xiphoides, or breast-blade, and making it in a form semicircular, cutting the skine, muscles, and peritonum, not touching the guts: then the wombe being lifted up, must first be cut, lest that otherwise the infant might perchance be touched or hurt with the knife.

You shall oftentimes finde the childe unmoveable, as though he were dead; but not because he is dead indeed, but by reason that he, being destitute of the aceccie of the fpirits by the death of the mother, hath contracted a great weeknesse: yet you may know whether he be dead indeed or no, by handling the artery of the navell, for it will beat and pant if he be alive, otherwise not; but if there be any life yet remaining in him, shortly after he hath taken in the aire, and is recreatid with the aceccie thereof, he will move all his members, and also all his whole body. In so great a weeknesse or debility of the strength of the childe, the fucundine must not bee pararated as yet from the childe, by cutting the navell string, but it must rather be laid close to the region of the belly thereof, that thereby the heat (if there be any remaining) may bee thred up againe. But I cannot sufficiently maravel at the infulency of them that affirm that they have seene women whose bellies and womb have bin more than once cut, and the infant taken out, when it could no otherwise be gotten forth, and yet notwithstanding alive; which thing there is no man can perfwade me can be done, without the death of the mother, by reason of the necessarie生成 of the wound that must bee made in the muscles of the belly, and substance of the wombe, for the wombe of a woman that is great with childe, by reason of the adherence of the stumell, and is diffended with much blood, must needs yeeld a great flux of blood, which of necessarie must be mortall. And to conclude, when that the wound or incision of the wombe is cicatrized, it will not permit or suffer the wombe to be dilated or extended to receive or bear a new birth. For these and suchlike other causes, this kind of cure, as desperate and dangerous, is not (in mine opinion) to be used.
Supercitation is when a woman doth beare two or more children at one time in her wombe, and they be enconcloed each in his severall secundine: but those that are included in the same secundine, are supposed to be conceived at one and the same time of copulation, by reason of the great and copious abundance of feed, and there have no number of daies between their conception & birth, but all at once. For as presently after meat the stomacke which is naturally of a good temper, is contracted or drawn together about the meate, to comprehend it on every side, though small in quantity, as it were by both hands, so that it cannot rowlie neither unto this or that side, so the wombe is drawne together unto the conception about both the feeds, as soon as they are brought into the capacity thereof, and is so drawne in unto it on every side, that it may come together into one body, not permitting any portion thereof to goe into any other region or side, so that by one time of copulation the feed that is mixed together, cannot engender more children than one, which are devided by their secundines. And moreover, because there are no such cells in the wombes of women, as are supposed, or rather knowne to bee in the wombs of beasts, which therefore bring forth many at one conception or birth. But now if any part of the womans wombe doth not apply and adjoyne it selfe closely to the conception of the feed already received, left any thing should be given by nature for no purpose, it must of necessity follow that it must be filled with aire, which will alter and corrupt the feeds. Therefore the generation of more than one infant at a time, having every one his severall secundine, is on this wise. If a woman conceive by copulation with a man as this day, and if that for a few daies after the conception, the orifice of the wombe be not exactly shut, but rather gape a little, and if shee doe then use copulation againe, so that at both these times of copulation there may be an effusion or perfect mixture of the fertile feed in the wombe, there will follow a new conception, or supertesation. For supercititation is no other than a certaine second conception, when the woman already with child, againe ues copulation with a man, and so conceiveth againe, according to the judgement of Hippocrates. But there may be many causes alledged why the wombe which did joyn and close doth open and unclose it selfe againe. For there bee some that supposse the wombe to be open at certaine times after the conception, that there may be an issue out for certaine excrementall matters that are contained therein, and therefore that the woman that hath so conceived already, and shall then use copulation with a man againe, shall also conceive againe. Others say that the wombe of itselfe, and of its owne nature is very defirous of feed or copulation, or elle being heated or enflamed with the pleasant motion of the man moving her therto, both at length unclose it selfe to receive the manes feed: for likewise it happeneth many times that the orifice of the stomack being shut after eating, is presently unlooked again, whereother delicate meats are offered to be eaten: even so may the wombe unclose it selfe againe at certaine seasons, whereof some manifold parties, whose time of birth and alfo of conception are different. For as Pliny writeth, when there hath bin a little space between two conceptions, they are both hastened, as it appeared in Hercules and his brother Iphicles: and in her, which having two children at a birth, brought forth one like unto her husband, and another like unto the adulterer. And also in the Procothemeian slave or bond woman, who by copulation on the same day brought forth one like unto her master, and another like unto his husband: and in another who brought forth one at the due time of child birth, and another after moneths end. And againe in another, who bringing forth her burthen on the seventh moneth, brought forth two more in the moneths following. But this is a moit manifest argument of supertesation, that as many children as are in the wombe (unless they bee twinnnes of the same sexe) so many secundines are there.
there, as I have often seen my selfe. And it is very likely that if they were conceived in the same moment of time, that they should all be included in one fecondine. But when a woman hath more children than two at one burden, it seemeth to bee a monftrous thing, because that nature hath given her but two breasts. Although wee shall hereafter rehearse many examples of more numerous births.

CHAP. XXXIII.

Of the tumour called Mola, or a Mola growing in the womb of Women.

F the greeke word Myle, which signifieth a Mill-stone, this tumour called Mola hath its name: for it is like unto a Mill-stone both in the round or circular figure, and also in hard consistence, for which reason the whistle-bone of the knee is called of the Latines mola, and of the Greeks Myle. But the tumour called Mola, whereof we hear we encrease, is nothing else but a certaine false conception of deformed flesh, round and hard, conceived in the womb as if it were rude and unperfect, and not distingui-

ished into members, comming by corrupt, weak, and diseased feed, and of the im-

moderate fluxe of the termes, as it is defined by Hippocrates. This is enclosed in no fecondine, but as it were in its owne skynne.

There are some that thinke the Mola to bee engendered of the conconcture or mixture of the womans feed and menstruall blood, without the communication of the mans feed. But the opinion of Galen is, that never any man saw a woman conceive either a Mola, or any other such thing, without copulation of man, as an hen laith eggs without a cock: for the only cause and original of that motion is in the mans feed, and the mans feed doth onely minifter matter for the generation thereof. Of the same opinion is Avicen, who thinketh the Mola to be made by the confluxion of the mans feed that is unfertile, with the womans; when as it, because unfruitful, one-

ly puffeth up or makes the womens feed to swell as leaven into a greater bignesse, but not into any perfect shape or forme. Which is also the opinion of Fernelius, by the decrees of Hippocrates and Avicen: for the immoderate fluxes of the courses are con-

ducting to the generation of the Mola, which overwhelming the mans feed, being now unfruitful and weak, doth constrain it to desist from its encrifice of confor-

mation already begun, as vanquished or wholly overcome: for the generation of the Mola commeth not of a simple heat working uppon a clammy and grosse humour, as worms are generated, but of both the feeds, by the efficacy of a certaine spirit, after a fort prolificall, as may be underftood by the membranes wherein the Mola is enclosed, by the ligaments whereby many times it is fastened or bound to the true conception or child, engendered or begotten by superfection: and finally, by the encreafe, and great and sluggiflue weight. If all men were not perswaded that the con-

flux of a mans feed must of necessity concurre to the generation of the Mola, it would bee no small cloak or cover to women to avoide the shame and reproach of their light behaviour.

CHAP. XXXIII.

How to disserne a true conception from a false conception or Mola.

Hen the Mola is enclosed in the womb, the same things appear as in the true and lawfull conception. But the more proper signes of the Mola are thefe: there is a certaine pricking paine, which at the beginning trou-

bleth the belly as if it were the cholicke, the belly will swell sooner than it would if it were the true issue, and will be distended with greater hard-

neffe, and is more difficult and troublesome to carry, because it is contrary to nature,
and void of soule or lite. Prettily after the conception the dugges swell and puff up, but shortly they fall and become lanke and laxe; for nature feedeth milk thither in vain, because there is no issue in the wombe that may spend the same. The mole will move before the third month, although it be obscurely, but the true conception will not; but this motion of the mole is not of the intellectual soule, but of the faculty of the wombe, and of the spirit of the seed disperseth through the substance of the mole; for it is nourished and increaseth after the manner of plants, but not by reason of a soul or spirit sent from above, as the infant doth. Moreover, that motion that the infant hath in its due and appointed time, differeth much from the motion of the mole; for the childe is moved to the right side, to the left side, and to every side gently, but the mole, by reason of its heaviness, is fixed, and roweth in manner of a stone, carried by the weight thereof unto what side the woman declineth her selfe.

The woman that hath a mole in her wombe, doth daily waxe leaner and leaner in her members, but especially in her legges, although notwithstanding towards night they will swell, so that shee will bee very flow or heavy in going, the natural heat foraking the parts remote from the heart by little and little; and moreover, her belly swells, by reason that the menstrual matter refeth about those places, and is not consumed in the nourishment of the mole; she is twolne as if she had the dropifie, but that it is harder, and doth not rise againe when it is pressed with the fingers. The navell doth not stand out as it will do when the true issue is contained in the womb, neither do the courses flow as they sometimes do in the true conception; but sometimes great fluxes happen, which ease the weight of the belly. In many when the mole doth decline not very fast, it falleth away within three or foure moneths, being not as yet come unto its just bignesse; and many times it cleaveth to the sides of the wombe and Coyledons very firmly, so that some women carry it in their wombs five or sixe yeeres, and some as long as they live.

The wife of Guiliam Roger Pewterer, dwelling in S. Vipers street, bore a mole in her wombe seventeen yeeres, who being of the age of fifty yeeres, died; and I having opened her, found the body of her wombe to be almost loosed, and not tied or bound by its accustomed ligatures, but as it were hanging only by the necke, and furthermore cleaving to the wall adjoyning to it, having but onely one tefticile, and that on the right side, and that somewhat broader and looser than usuall: the horns were not to be seen except it were on that side, the vesseles were on the necke onely, and there very manifest and puffed up, it was as bigge as a mans head. When I had taken it out of her body, I brought it home unto my house, that at my leasure I might finde out what was contained in it so long; therfore on a certaine day calling together the chiefe Physicians of Paris, as Malignius, Alexius, Vigor, de S. Font, Feure, Bruy<ras, Vir<las, Gracianus, Rauin, Marocotus, Melius, Haunt<, Riolan, Lusfon, and Chirurgians, as Brun, Casteller, Guilem<; all these being present, I opened the wombe, and I found it in all the body thereof and in the proper tunicle, fo fchirrous, and so hard, that I could hardly cut or make a knife to enter into it: the body thereof was three fingers thick. In the midst of the capacity thereof I found a lump of flesh as bigge as both my fist, like unto a Cowes udder, cleaving to the sides of the wombe but in certaine places, of a very thicke, unequall and cloudtie substance, with many bodies therein, even as are commonly found in wennes and griftles, disperseth through it as if it were bones. The judgement of all that were present was, that this great tumour at the first was a mole, which in process of time degenerateth into a fchirrous body together with the proper substance of the wombe. Moreover, in the middle of the neck of the wombe, we found a tumor as big as a Turkies egg, of substance hard, cartilaginous and bone, filling all the whole necke, but especially the inward orifice of the wombe, which the common people of France do call the Garland, so that by that paflage nothing could goe out, or enter into the wombe: all that tumor weighed nine pounds and two ounces, which I, by reason of the novelty of the thing, keep in my clofet, and here I have described it.
Concerning the Generation of Man.

The external form and description of the fore-named womb.

A. Sheweth the body of the womb.
B. The cleft.
C. The neck of the womb, wherein that little tumour was contained.
D. Sheweth the end of the neck of the womb that was plucked in sunder, and also the vessels whereby it drew the nutrient unto it.
E. Sheweth the band.
FFF. The vessels dispersed thorow the womb.

The description of the womb being open, and shewing the Mola contained therein.

A A. Shew the externall and superficial part of the womb.
B B B B. Show the thickness of the body or proper substance of the womb.
C. Sheweth the Mola.
D D. Show that concavity wherein the mola was contained or inclosed in the womb.
As long as the woman carried this mole in her womb, she felt most sharp pain in her belly, the region of her belly was marvellous hard, distended and large, as if it were a woman that had many children at once in her womb, so that many Physicians when the time of child-birth was past, supposing that swelling of the belly to come of the dropie, and affayed to cure it as they would the dropie, but for all the medicines they could use, the belly became never the lesser. Oftentimes the urine was stopped for the space of three days, and then the making of urine was very painfull unto her, and many times also her excrements were stopped for the space of a weeke, by reason that the guts were prejudiced by the weight of the mole. At certaine seasons, as every third moneth, there came exceeding great fluxes, the matter thereof could not be carried through the capacity of the womb, as wee said before, because it was exactly that and stopped, but through the vesells by which virgins, and also certaine other women great with child evacuate their menstrual matter. If the mole be expelled or cast out in the first or second moneth, as many times it doth happen, it is called of women an unprofitable or false conception. Sometimes there are found in one wombe two or three moles separated one from another, and sometimes bound or tied to the found and perfect infant. As it happened in the wife of Valleria the Physician, which was delivered of a mole which she had carryed in her wombe twelve moneths, annexed with a child of foure moneths old, which had deprived the infant both of its roome and nutriment. For it is alwayes to be certainly supposd, that the mole, as a cruel beaft, by its socicty, and keeping it from its nurishment and place, kills the infant that is joyned unto it.

I remember once I opened the body of a dead woman, which had a mole in her wombe as bigge as a goose egg, which when nature had assayed by many vain endeavours to cast out, remained notwithstanding, and at length putrefied, and thereby infected the whole wombe, whereof she dyed. There be some which judging themselves great with child, do about the ninth or tenth moneth expell no other thing but forming blasts of wind, whereby the wombe suddenly falling downe and waxing more slender, they are said in a mockery to have been delivered of a fart.

To conclude, whatsoever reemblles being with child, if it be not excluded at the due and lawful time of child-birth by its owne accord or by the strength of nature, then must it be expelled by art.

CHAP. XXXV.

What cure must be used to the mole.

There be things that provoke the flowers and secundines, and exclude the infant being dead, are to be preferred, given inwardly, put up, and applied outwardly, as the trochitices of myrrhis, hermodacthls, and such like, first having fomentations that are relaxing and mollifying alwayes applied to the places. You must use the medicines and phlebotomy, diet and bathes, so long as it shall seem necessary to the Physician that is present. But if it happens that the mole is separated or loosed from the wombe, and nature cannot expell it when it is so loosed, let the Chirurgion place the woman in that situation that we said she was to bee put in, when the child was to bee drawne from her. Then open her genital parts, let him take hold on it by putting an instrument into it, which by reason of the likeness thereof, is called a Gryphons Talon, for it cannot be taken hold on otherwise by reason of the roundness thereof, for it hath no place whereon it may be taken hold of: therefore, when one taketh hold on it with his hand, it cannot be holden fast by reason of the slipperinesse thereof, but will run and flip backe into the hollownesse of the wombe, like unto a bowle or great ball; but it may bee more easily taken hold on with the Gryphons Talon, if the belly be pressd on both sides that it may remaine still while the Gryphons Talon takes hold on it, for when it hath taken good hold on it, it may be easilly drawn out. When the mole is drawne out, the same cure must be used to the woman, as is used to a woman after she is delivered of child.

172
Concerning the Generation of Man.

The figure of an instrument called a Gryphon's Talon, to draw out the Mola when it is loose in the womb.

CHAP. XXXVI.

Of Tumours or swellings happening to the Pancreas or sweet-bread, and the whole Mesentery.

He tumours of other places and parts in the belly ought diligently to be distinguished from the mola, and other tumours of the womb. For when tumours arise in the glandula called Pancreas, and in all the whole Mesentery, many unskilful Chirurgions take them for mola's or scirrhous tumours of the womb, and so goe erroneously about to cure them, as shall appeare by those histories following.

Isabel Rolane the wife of John Boney dwelling in Paris in the street Moneta neere Abbaye, to St. Gervais his Church, being three score yeeres of age, departed this life in the yeare of our Lord God 1578. on the twenty second day of October: and her body being opened in the presence of Doctor Milot the Physitian, hee when the Mesentery was taken out of the body, caused it to be carried home to his house, that at his pleasure he might find out the cause of this mortal disease, which was always suspected to be in the Mesentery. Therefore on a time calling Pardue, Brosse, Chapell, Mascoins, Arragonius, Ballium, Rehurtius and Rolane, all Doctors of Physick, and me and Pince Chirurgions, to his house to see the same. Where wee found all the Mesentery and the Pancreas in the Mesentery swolne and puffed up with a marvellous and almost incredible tumour, so that it wayed ten pound and an halfe, altogether scirrhous on the out side, cleaving on the hinder part onlye to the vertebres of the loynes: but on the fore part to the Peritonaeum, being also scirrhous and wholly cartilaginous. Moreover, there were infinite other abscesses in the same Mesentery, every one closed in his severall cyst, some filled with a hony-like, some with a tallow-like, some with an albugineous, and some with a waterish liquor or humour, whereof some also were like unto pap, and to conclude, looke how many abscesses there were, so many kinds or differences of matters there were. It was then eight yeares since that tumour began to grow by little and little without feeling and paine unto such a greatnesse, because that the Mesentery it selfe was without pain in a manner. For the woman her selfe could do all the faculties of nature almost as well as if she had bin found and whole, except that two moneths before she died, she was constrained to keep her bed: because shee had a continual feaver, which endured so long as she lived, and also because that the Mesentery, being as it were separated or borne from its roots or feate, did rowle up and downe in the belly, not without the feeling of grievous paine: for, as we said before, it did stick but only to the vertebres of the loynes and Peritonaeum, and nothing at all to the guts and other parts wherunto it is as it were naturally kant or joyned.
Therefore because the weight and heaviness thereof depressed the bladder, it caused a great difficulty in her making of water, and also because it refented on the guts, it made it very painful for her to go to stool; so that the excrements would not come downe except she tooke a sharper glasser to caufe them: and as concerning the dropste, they could not be put up high enough, by reason of the greatneffe of the tumour which enclosed and futfhed the way; and suppurations did no good at all. It was also very difficult for her to take breath, by reason that the midrife or dia-phramne was comprifed with the tumour. There were fome that did fufped it to be a mole, others thought that it came by reason of the dropfte. Affuredly this difaffe caufed the dropeffe to enfue, neither was the caufe thereof obfurd, for the function of the liver was quite frustrated by reason that the concoction or alteration of the Chylus was intercepted by occafion of the tumour: and moreover, the liver it felfe had a proper difaffe, for it was hard and flirrhous, and had many abfeefles both within and without it, and all over it. The milk was scarce free from putrefaction, the guts and Kall were somewhat blew and spotted; and to bee briefe, there was nothing found in the lower belly.

There is the like history to bee read, written by Philip Ingraffias, in his booke of rumours, of a certaine Moore that was hanged for theft, for (faith he) when his body was properly diuffered, in the Mefenterium were found feventy fcrophulous tumours, and fo many abfeefles were contained or enclofed in their feverall cyfts or skins, and ftricking to the external tunicle, especially of the greater guts: the matter conteined in them was divers, for it was hard, knotty, clammy, glutinous, liquid and waterife, but the entrals, especially the liver and the milk, were found and free from all manner of tainture, becaufe (as the fame Author alluded) nature being ftrong, had fent all the evil juice, and the corruption of the entrals into the Mefentery: and verily this Moore, fo long as he lived, was in good and perfect health. Without doubt the corruption of superfluous humours for the most part is fo great (as it is noted by Fennlius) that it cannot bee received in the receptacles that nature hath appointed for it; therefore then no small portion thereof falleth downe into the parts containing, and especially into the Mefentery and pancreas, which are as it were the fink of the whole body. In those bodies which through continual and daily gluttony abound with cholcre, melancholy and fpearance, if it be not purged in time, nature being ftrong and fift, doth deprive and drive it downe into the pancreas and the Mefentery, which are as places of no great repute, and that especially out of the liver and milk by thofe veins or branches of the vena porta which end or goe not into the guts, but are terminated in the Mefentery and pancreas. In thofe places divers tumours are heaped together, which in proceede of time turne into a loft and foft tumour, and then if they grow bigger, into a fittle, hard and very flirrhous tumour. Whereof Fennius affirmeth that in thofe places he hath found the cauSES of cholcre, melanchohly, fluxes, eyfenteries, cachexia, atrophia, consumptions, tedious and uncertain fevers, and laftly of many hidden difafees, by the taking away whereof fome have received their health, that have been thought paine cure. Moreover Ingraffias affirmeth out of Julius Fulfix that Scrophulæ may be engendred in the Mefentery, which nothing differs from the mind & opinion of Galen, who faith that Scrophulæs are nothing else but indurate & flirrhous kernels. But the Mefenterium with his glandules being great and many, making the Panamae, doth efftablifh, strenthen and conforme the divifions of the vesfels. Alfo the flirrhous of the proper fubftance of the wombe is to bee dillinguifhed from the mole: for in the bodies of fome women that I have opened, I have found the wombe annoyed with a flirrhous tumour as big as a mans head, in the curing whereof Physicians nothing prevailed, becaufe they fuppofed it to be a mole contained in the capacity of the wombe, and not a flirrhous tumour in the body thereof.

Chap.
Here are many causes of barrenness in men, that is to say, the too hot, cold, dry or moist distemper of the seed, the more liquid and flexible consistence thereof, so that it cannot stay in the womb, but will presently flow out again; for such is the seed of old men and striplings, and of such as use the act of generation too often and immoderately: for thereby the seed becometh crude and waterish, because that it doth not remain his due and lawful time in the testicles, wherein it should be perfectly wrought and concocted, but is evacuated by wanton copulation. Furthermore, that the seed may be fertile, it must of necessity be copious in quantity, but in quality well concocted, moderately thick, clammy, and pulled up with the abundance of spirits; both these conditions are wanting in the seed of them that use copulation too often; and moreover, because the wives of these men never gather a just quantity of seede laudable both in quality and consistence in their testicles, whereby it commeth to pass that they are the lesser provoked or delighted with venereal actions, and performe the act with less alacrity, so that they yield themselves lefle prone to conception. Therefore let those that would be parents of many children use a mediocrity in the use of venery.

The woman may perceive that the man's seed hath some distemper in it, if how the cutting when she hath received it into her wombe, she feeleth it sharpe, hot or cold, if the man be more quick or slow in the act. Many become barren after they have been cut for the stone, and likewise when they have had a wound behind the ears, whereby certain branches of the jugular veins and arteries have been cut, that are there, so that the stones or testicles cannot any more receive, neither matter nor lively spirits from the brain in so great quantity as it was wont, whereof it must of necessity follow, that the seed must be less in quantity, and weaker in quality.

Those that have their testicles cut off, or else compressed or contused by violence, cannot beget children, because that either they want the help that the testicles should minister in the act of generation, or else because the passage of the seminal matter is intercepted or stopped with a Callus: by reason whereof they cannot yield forth seed, but a certain clammy humour contained in the glandules called profura (yet with some feeling of delight).

Moreover the defects or imperfections of the yard may cause barrenness: as, if it be too short, or if it be too unreasonable great, that it reneth the privie parts of the woman, and so causeth a fluxe of blood, for then it is to painefull to the woman, that she cannot viade her seed, for that cannot bee excluded without pleasure and delight, also if the thigh of the ligament that is under the yard doth make it to be crooked, and violate the fitness straightneffe thereof, so that it cannot be put directly or straightly in the women privie parts. There bee some that have not the orifice of the conduit of the yard rightly in the end thereof, but a little higher, so that they cannot ejaculate or cast out their seed directly into the womb.

Also the particular pallie of the yard is numbered among the causes of barrenness: and you may prove whether the pallie bee in the yard by dipping the genitals in cold water: for except they do draw themselves together or shrinke up after it, it is a token of the pallie, for members that have the pallie, by the touching of cold water, do not shrinke up, but remaine in their accustomed laxity and loosenesse: but in this case the genitals are ended with small fenne; the seed commeth out without pleasure or fitness of the yard; the stones in touching are cold; and to conclude, those that have their bodies daily waxing lean through a consumption, or that are vexed with an evil habit or disposition, or with the obstruction of some of the entrals, are barren and unfruitful, and likewise those in whom some noble part necessary to life
Concerning the Generation of Man.

and generation exceedeth the bounds of nature with some great distemperature, and lastly those who by any means have their generall parts deformed.

Here I omit those that are withholden from the act of generation by enchantment, magic, witching, and enchanted knots, bands and ligatures, for those causes belong not to physick, neither may they be taken away by the remedies of our art. The Doctors of the Cannons laws have made mention of those magic bands which may have power in them, in the particular title De frigidis, maleficis, impotentibus & incantatis: also St. August, hath made mention of them, De ci. 7, in Joan.

Chap. XXXVIII.

Of the barrennesse or unfruitfulness of women.

Woman may become barren or unfruitfull through the obstruction of the pasage of the feed, or through straitness or narrownesse of the necke of the womb, comming either through the default of the formativ facultie, or else afterwards by some mishance, as by an absces, feirrhus, warts, chaps, or by an ulcer, which being cicatrized, doth make the way more narrow, so that the yarde cannot have free passage thereinto: Moreover, the membrane called Hymen, when it groweth in the midst or in the bottom of the necke of the womb, hinders the receiving of the mans seed. Also if the womb be over flippery, or more loose, or slack, or over wide, it maketh the woman to bee barren, so doth the suppression of the menstrual fluxes, or the too inmoderate flowing of the courtes or whites: which commeth by the default of the womb or some entral, or of the whole body, which consumeth the mensural matter, and carrieth the feed away with it.

The cold and moist distemperature of the womb, extinguisheth and suffocates the mans seed, and maketh it that it will not stay or cleave unto the womb, and stay till it be conconced: but the more hot and dry doth corrupt for want of nourishment, for the seeds that are bowne either in a marish or sandy ground cannot prosper well: also a mole contained in the womb, the falling down of the womb, the leannesse of the womans body, ill humours bred by eating crude and raw fruits, or great or overmuch drinking of water, whereof obstructions and crudities follow, which hinder her fruitfulnesse. Furthermore, by the use of stupefactive things, the feminall matter is concealed and restrained, and though it flow and be cast out, yet it is deprived of the prolificke power, and of the lively heat and spirits, the orifices or cotylidones of the veins and arteries are stopped, and so the passage for the mensural matter into the womb, is stopped. When the Kall is so far that it girdeth in the womb narrowly, it hindereth the fruitfulnesse of the woman, because it will not permit the mans seed to enter into the womb. Moreover the fat and cleshy habit of the man or woman hinder generation. For it hindereth them that they cannot joyn or their generall parts together: and by how much the more blood goeth into fat, by so much the leffe is remaining to be turned into feed & mensural blood, which two are the originals & principals of generation. Those women that are speckled in the face, some what lean, & pale, because they have their genitals moistened with a faurit, sharp and tickling humour, are more given to venery than those that are red & fat. Finally, if the feeders causes only why women are barren and unfruitfull: the first is, because they cannot receive the mans seed, by reason of the default of the necke of the womb; the second, because when it is received into the womb, they cannot conceive it; the third is, because they cannot nourish it; the fourth, because they are not able to carry or bear it untill the due and lawful time of birth. These things are necessary to generation, the object, will, faculty, concourse of the feed, and the remaining or abiding thereof in the womb, untill the due and appointed natural time.

Chap.
Concerning the Generation of Man.

Chap. XXXIX.

The signs of a disfempered womb.

Hat woman is thought to have her wombe too hot, whose courses come forth sparingly and with paine, and exulcerate by reason of their heat, the superfluous matter of the blood being dissolved or turned into wind by the power of the heat: whereupon that menstrual blood that floweth forth is more grosse and black. For it is the property of heat, by digesting the thinner substance, to thicken the rest, and by addition to make it more black. Furthermore, he that hath her genitals itching with the desire of copulation, will foone exclude the seed in copulation, and thee shall feel it more sharpe as it goeth through the passages. That woman hath too cold a wombe whose flowers are either stopped, or flow sparingly, and those pale and not well coloured.

Those that have leffe desire of copulation, have leffe delight therein: and their seed is more liquid and waterish, and not staying a lennen cloth by sticking therein, and it is sparingly and slowly cast forth. That wombe is too moist that floweth conjunctly with many liquid excrements, which therefore will not hold the seed, but presently after copulation will the seed fall out, which will easily cause abortion.

The signes of too dry a wombe appear in the little quantity of the courses, in the profusion of a small quantity of seed, by the desire of copulation, whereby it may be made slippery by the moisture of the seede, by the effures in the necke thereof, by the chaps and itching, for all things for want of moisture will even like unto the ground, which in the summer by reason of a great drought or dryness, will chap and chinke this way and that way, and on the contrary, with moisture it will clode and joyn together againe as it were with glew.

A woman is thought to have all opportunities unto conception when her courses are more time for or flowers doe cease, for then the wombe is void of excreamentall filth, and because it is yet open, it will more easily receive the mans seede, and when it hath received it, it will better retaine it in the wrinkles of the corylides yet gaping as it were in rough and unctuall places. Yet a woman will easily conceive a little before the time that the flowers ought to flow: because that the menstrual matter falling at first like dew into the wombe, is very meet and fit to nourish the seede, and not to drive it out againe, or to suffocate it.

Those which use copulation when their courses fall down abundantly, will very hardly or seldom conceive, and if they doe conceive, the child will be weake and diseased, and especially if the womans blood that flowes out be unbound, but if the blood be good and laudable, the child will bee subject to all phlethoricke diseases. There are some women in whom presently after the fluxe of the tertres, the office of the wombe will be cloed, so that they must of necessity use copulation with a man when their menstrual fluxe floweth, if at leaft they would conceive at all. A woman may beare children from the age of fourteen untill forty or fifty: which time whosoever doth exceed, will beare untill three score yeares, because the menstrual fluxes are kept, the prolificall faculty is also preferred: therefore many women have brought forth children at that age, but after that time no woman can beare, as Artis. Angl., 1, ch. 11.

Yet Pliny faith that Cornelia (who was of the house of the Scipiones) being in the fixtis or sixtieth yeare of her age, bare Volusius Saturnius, who was Consull; in his Historie lib. 6, cap. 13. de Surrenta also affirmeth, that he saw a woman that bare a child in the fixtieth yeare of her age, having borne before on the sixtieth and fixty first yeare. Therefore it is to bee supposd that by reason of the variety of the ayre, region, diet and temperament, the mensuall fluxe and procreative facultie ceaseth in some sooner, in some later; which variety taketh place also in men. For in them although the seed be generable for the most part in the second yeare, yet truly it is unfruitfull untill the third yeare. And whereas most men beget children untill they be three score
What is the falling downe of the wombe. The causes.

He wombe is said to fall downe and be perverted, when it is moved out of its proper and natural place, as when the bands and ligatures thereof being loosed and relaxed, it falleth downe unto one side or other, or into its owne necke, or else paffeth further, so that it comes out at the necke, and a great portion thereof appears without the privie parts. Therefore what things ever resolve, relaxe, or burst the ligaments or bands whereby the wombe is tyed, are suppos’d to be the causes of this accident. It sometimes happens by vehement labour or travell in child-birth, when the wombe with violence excluding the issue and the succundines, also followes and falls downe, turning the inner fide thereof outward. And sometimes the foolish rashnesse of the midwife, when shee draweth away the wombe with the infant, or with the succundine cleaving fast thereunto, and so drawing it downe and turning the inner side outward. Furthermore, a heavie bearing of the womb, holding or fetting of the hands or body upwards in the time of greatnesse with child, a fall, contusion, shaking, or jogging by riding, either in a waggon or a coach, or on horse backe, or by leaping or dancing, the falling downe of a more large and abundant humour, great griping, a strong and continuall cough, ætenusmus, or often desire to go to stoole, yet not voiding any thing, needeth a manifold and great birth, difficult bearing of the wombe, an athmaticall and orthopnoicall difficulty of breathing, whatsoever doth weightily press downe the Diaphragma or Midriff, or the muscles of the Epigastrium, the taking of cold aire in the time of travell with child, or in the flowing of the mensural fluxe, sitting on a cold marble stone, or any other such like cold thing, are thought often times to bee the occasion of these accidents, because they may bring the wombe out of its place.

It falls downe in many (faith Aristoteles) by reason of the desire of copulation that they have, either by reason of the lustifnece of their youth, or else because they have abstained a long time from it.

You may know that the wombe is fallen downe by the pain of those parts where-hence it is fallen, that is to say by the entials, loynes, as sacrum, and by a trable tumour at the necke of the wombe, and often with a visible hanging out, of a diversive greatnesse, according to the quantity that is fallen downe. It is leene sometimes like unto a piece of red flesh, hanging out at the necke of the wombe, of the bignesse and forme of a Goose ege; if the woman stand upright, feee feeleth the weight to ly on her privie parts, but if shee sit or ly, then the perceiveth it on her back, or goe to the stoole, the strangest jot called intesmillum rectum will bee pressed or loaden as it were with a burthen, if shee lie on her belly, then her urine will bee stopped, so that shee shall feare to use copulation with a man.

When the wombe is newly relaxed in a young woman, it may bee soone cured, but if it hath bene long downe in an old woman, it is not to bee helped. If the palfie of the ligaments thereof have occassionned the falling, it scarce admits of cure, but if it fall downe by means of purrefaction, it cannot possibly be cured. If a great quantity thereof hang out betweene the thighs, it can hardly be cured; but it is corrupted by taking the ayre, and by the falling downe of the urine and filth, and by the motions of the thighs in going it is ulcerated, and so putrefies.

I remember that once I cured a young woman who had her wombe hanging out at her privie parts as big as an ege, and I did so well performe and perfect the cure thereof, that afterwards she conceived, and bare children many times, and her wombe never fell downe.

Chap. XL.

Of the falling downe, or perversion, or turning of the wombe.

The signes.

The prognostications.

A history.
The cure of the falling downe of the Womb.

By this word, falling downe of the wombe, we understand every motion of the wombe out of its place or seat: therefore if the wombe ascend upwards, wee must use the same medicines as in the strangulation of the wombe. If it bee turned towards either side, it must be restored and drawne backe to its right place, by applying and using cupping glasses.

But if it descend and fall downe into its owne neck, but yet not in great quantity, the woman must be placed so that her buttockes may be very high, and her legs acroffe; then cupping glasses must bee applied to her navell and *Hypergastrum*, and when the wombe is so brought into its place, injections that binde and dry strongly must bee injected into the necke of the wombe, stinking fumigations must bee ufed unto the privie parts, and sweet things ufed to the mouth and nofe.

But if the wombe hang downe in great quantity betweene the thighes, it must be cured by placing the woman after another fort, and by using other kinde of medicines. Firft of all she must bee so layed on her backe, her buttockes and thighes so lifted up, and her legges so drawne backee as when the childe or secundine are to bee taken or drawne from her; then the necke of the wombe, and whatsoever hangeth out therewith, must be anointed with oile of lillies, fresb butter, capons greasse, and such like, then it must bee thrust gently with the fingers up into its place, the sick or pained woman in the mean time helping or furthering the endeavoure by drawing in of her breath as she did suppe, drawing up as it were that which is fallen downe.

After that the wombe is restored unto its place, whatsoever is filled with the ointment must bee wiped with a soft and cleane cloth, lest that by the slipperiness thereof the wombe should fall downe againe, the genitalls must bee fomented with an astringent decoction, made with pomegranate pills, cypresse nuts, galles, roach almonds, horse-taile, tumach, berberies, boiled in the water wherein Smithes quench their irons; of these materials make a powder, wherewith let those places be sprinkled: let a peffary of a competent bignesse be put in at the necke of the wombe, but let it bee eight or nine fingers in length, according to the proportion of the grieved patients body. Let them bee made either with latin, or of corke covered with waxe, of an ovall forme, having a thread at one end, whereby they may bee drawne backe againe as need requires.

The forms of ovall peffarigs.

A. showeth the body of the Peffary.  
B. showeth the thread wherewith it must be tied to the thigh.
Conceming the Generation of Man.

When all this is done, let the sick woman keep her selfe quiet in her bed, with her burrocks lying very high, and her legs acrosse, for the space of eight or ten daies: in the meantime while the application of cupping glaflses will stay the wombe in the right place and for after it is restored thereto: but if the same hath taken any hurt by cold aire, let the privie partes be fomented with a difcutting and healing fomentation, on this wife. And then, after it was cut, the tumour, or swelling in her groine, affwaged the paine with mollifying and cold fomentations and cataplasmes; but presently after he had done this, she found on the inner side of the lip of the orifice of the necke of the wombe, an apoftume rotten & running as it had bin out of an abceffe newly broken, with fanguine matter, somewhat red, yellow, & pale running out a long time. Yet for all this the feeling of the heavines or weight was nothing diminifhed, but did rather encreafe daily, so that from the yeere of one Lord 1573, she could not turne her felfe being in bed on this or that fide, unleffe she layed her hand on her belly to bear and cafe her felfe of the weight, and alfo she said when she turned her selfe, the feemed to feele a thing like unto a bowle to rowe in her body unto the fide whereunto she turned her selfe, neither could she goe to toile, or avoid her excrements standing or fitting, unleffe she lifted up that weight with her hands towards her fromecke or midriffe: when fhee was about to goe she could scarce fer forwards her feet, as if there had been thinge hanged between her thighs, that did hinder her going. At certaine feaons that rotten apoftume would open, or unclofe of it felfe, and floure or run with its wonted fanguine matter, but then she was grievously vexed with paine of the head, and all her members, swooning, loathing, vomiting, and almoft choking, so that by the perfwация

A difcutting & healing fomentation.

How vomiting is profitable to the fulfupping of the wombe.

The curring way of the wombe when it is purfayed.

A history.

John Langius Phifitian to the Count Palatine, writeth that Carpus the Chirurgian took out the wombe of a woman of Bononia, he being prefent, and yet the woman lived and was very well after it. Antonius Beuvenius Phifitian of Florence, writeth that he was called by Ugoius the Phifitian to the cure of a woman whose wombe was corrupted and fell away from her by pieces, and yet she lived ten yeares after it.

There was a certaine woman, being found of body, of good repuate, and about the age of thirty yeares, in whom shortly after she had been married the second time, which was in Anno 1571. having no child by her first husband, the Lawfull fignes of a right conception did appear: yet in proceffe of time there arose about the lower part of her privities the fente or feeling of a weight or heavineffe, being fo troublome unto her by reason that it was painfull, and alfo for that it flopped her urine; ther she was constrained to difcover her mischance to Christoper Monoby a Chirurgian her neighbour dwelling in the suburbs of S. Germans; who having beene in the tumour or swelling in her groine, aflagew the paine with mollifying and antidote fomentations and cataplasmes; but presently after he had done this, she found on the inner side of the lip of the orifice of the necke of the wombe, an apoftume rotten & running as it had been out of an abceffe newly broken, with fanguine matter, somewhat red, yellow, & pale running out a long time. Yet for all this the feeling of the heaviness or weight was nothing diminisshed, but did rather encrease daily, so that from the yeere of one Lord 1573, she could not turne her selfe being in bed on this or that fide, unleffe she layed her hand on her belly to bare and eafe her selfe of the weight, and alfo she said when she turned her selfe, she seemed to feele a thing like unto a bowle to rowle in her body unto the fide whereunto she turned her selfe, neither could she goe to toile, or avoid her excrements standing or fitting, unleffe she lifted up that weight with her hands towards her fromecke or midriffe: when she was about to goe she could scarce fer forwards her feet, as if there had been thinge hanged between her thighs, that did hinder her going. At certaine seaons that rotten apoftume would open, or unclofe of it felfe, and flow or run with its wonted fanguine matter, but then she was grievously vexed with paine of the head, and all her members, swooning, loathing, vomiting, and almoft choking, so that by the perfwация
Concerning the Generation of Man.

Lib. 24.

of a foolish woman she was induced and contented to take Antimonium; the working and strength thereof was so great and violent, that after many vomits, with many frettings of the guts and uneasy dejections or ftooles, she thought her fundament fell downe; but being certified by a woman that was a familiar friend of hers, unto whom she showed her selfe, that there was nothing fallen downe at or from her fundament, but it was from her wombe, she called, in the yeere of our Lord 1575. Chirurgians, as myselfe, James Guillemeau, and Antony Vieux, that we might help her in this extremity.

When we had diligently and with good consideration weighed the whole estate of her disease, we agreed with one consent, that that which was fallen downe should bee cut away, because that by the blace colour, stinking, and other such signes it gave a manifieft testimonie of a putrefied and corrupted thing. Therefore for two daies wee drew out the body by little and little, and piece-meale, which seemed unto the Physicians that wee had called, as Alexius, Gaudinus, Feureus, and Viulanus, and alfo to our selves, to bee the body of the wombe, which thing we proved to bee so, because one of the tefticles came out whole, and alfo a thicke membrane or skin, being the relicke of the mola, which being suppurrated, and the abfeffe broken, came out by little and little in matter; after that all this body was so drawne away, the sick woman began to waxe better and better, yet notwithstanding for the space of nine daies before it was taken away, she voided nothing by siege, and her urine alfo was stopp'd for the space of foure daies.

After this all things became as they were before, and shee lived in good health three moneths after, and then died of a Pleurifie that came on her very suddenly, and I having opened her body, observing and marking every thing very diligently, could not finde the wombe at all, but inffe thereof there was a certaine hard and callous body, which nature, who is never idle, had framed in stead thereof to supply the want thereof, or to fill the hollownesse of the belly.

Whether there be a membrane called Hymen.

In some virgins or maidens in the orifice of the neck of the wombe there is found a certaine tunicle or membrane called of antiquitie writers Hymen, which prohibiteth the copulation of a man, and caueth a woman to be barren; this tunicle is supposed by many, and they not of the common sort only, but alfo learned Physicians, to bee, as it were, the enclofure of the virginity or maidenhead. But I could never finde it in any, seeking of all ages from three to twelve, of all that I had under my hands in the Hospitall of Paris.

Yet once I saw it in a virgin of seaveneteene yeres, whom her mother had contracted to a man, and she knew nevertheless there was something in her privie parts that hindered her from bearing of children, who deuised me to see her; and I found a certaine very thin nervous membrane a little beneath the hympha, neere unto the orifice of the neck of the wombe; in the midst there was a very little hole whereout the termes might flow: I seeing the thickeenesse thereof, cut it in fnder with my fizers, and told her mother what she should doe afterwards; and truly shee married Shortly after and bore children. Realdus Columbus is of my opinion, and faith that this is seene very seldom, for these are his words: under the hympha in many, but not in all virgins, there is another membrane, which when it is present (which is but seldom) it stoppeth, so that the yard cannot bee put into the orifice of the wombe, for it is very thicke above towards the bladder, it hath an hole by which the conceive flow out. And he also addeth that he observed it in two young virgins, and in one elder maide.

Avicen writeth that in virgins in the necke of the wombe there are tunicles composed of veins and ligaments very little, rising from each part of the necke thereof which
Concerning the Generation of Man. Lib. 24.

which at the first time of copulation are wont to be broken, and the blood to run out. Almanor writeth that in virgins, the passage or neck of the womb is very wrinkled, or narrow and straight, and those wrinkles to be woven or flayed together with many little veins and arteries, which are broken at the first time of copulation.

These are the judgements of Physicians of this membrane: Midwives will certainly affirm that they know a virgin from one that is deflowerd, by the breach or foundness of the membrane. But by their report too credulous Judges are soon brought to commit an error. For that Midwives can speak nothing certainly of this membrane, may be proved by this, because that one faith that the situation thereof is in the very entrance of the privie parts, others say it is in the midst of the neck of the womb, and others say it is within at the inner orifice thereof, and some are of an opinion that they say or suppose that it cannot be seen or perceived before the first birth. But truly of a thing so rare, and which is contrary to nature, there can not be any thing spoken for certainty. Therefore the blood that commeth out at the first time of copulation comes not always by the breaking of that membrane, but by the breaking and violating or renting of the little veins which are woven and beforced all over the superficial & inward parts of the womb and neck thereof, descending into the wrinkles, which in those that have not yet used the act of generation, are closed as if they were glued together: although that those maidens that are at their due time of marriage, feel no pain nor no flux of blood, especially if the mans yard be answerable to the neck of the womb, whereby it appears evidently how greatly the inhabitants of the metropole city of Mauritania, are deceived: for Leo the African writeth that it is the custom among them, that so soon as the married man and his spouse are returned home to their house from the church where they have been married, they presently shut themselves into a chamber, and make fast the door, while the marriage dinner is preparing: in the mean while some old or grave matron standeth waiting before the chamber door, to receive a bloody linen cloth the new married husband is to deliver her there, which when she hath received, she brings it into the midst of all the company of guests, as a fresh spoile and testimony of the married wives virginity, and then for joy thereof they all fall to banqueting solemnly. But if through evil fortune it happeneth that in this time of copulation the spouse bleedeth not in the privie parts, she is restored againe unto her parents, which is a very great reproach unto them, and all the guests depart home sad, heavie, and without dinner.

Moreover, there are some, that having learned the most filthy and infamous arts of bawdry, prostitute common harlots to make gain thereof, making men that are naughtily given to believe that they are pure virgins, making them to think that the act of generation is very painful and grievous unto them, as if they had never used it before, although they are very expert therein indeed, for they doe cause the neck of the womb to be so wrinkled and shrunk together, that the sides thereof shall almost close or meet together, then they put therein the bladders of fitches, or gales of beasts filled full of blood, and so deceive the ignorant and young lecher, by the fraud and deceit of their evil arts, and in the time of copulation they mixe sighes with groanes, and womanlike cryings, and the crocodiles tears, that they may seeme to be virgins, and never to have dealt with man before.

Chap. XLIII.

A memorable history of the membrane called Hymen.

John Wierus writeth that there was a maid at Camburge, who in the middle of the neck of the womb, had a thick and strong membrane growing overthwart, so that when the monthly terms should come out, it would not permit them, so that thereby the menstrual matter was stopped and flowed back againe, which caused a great tumour and distension in the belly, with great torment, as if she had beene in travell with child: the
the mydwives being called, and having scene and considered all that had been done, and did appear, did all with one voyce affirm, that shee sustain the paines of childe-birth, although that the maide her selfe denyed that shee ever dealt with man. Therefore then this foresaid Author was called, who, when the mydwives were of help and counsell, might helpe this wretched maid, having already had her urine stoppe for three whole weeks, and perplexed with great watchings, loffe of appetite, and loathing: and when hee had scene the grieved place, and marked the orifice of the neck of the wombe, he saw it stoppe with a thick membrane; he knew also that that sudden breaking out of bloud into the wombe and the vessels thereof, and the paffage for those matters that was stoppe, was the caufe of her grievous and tormenting paine. And therefore hee called a Chirurgian presenty, and willed him to divide the membrane that was in the midlt, that did stoppe the fluxe of the bloud, which being done, there came forth as much black conceale and putrefied bloud as wayed some eight pounds. In three dayes after shee was well and void of all disease and paine. I have thought it good to set downe this example here, because it is worthy to be noted, and profitable to be imitated, as the like occasion shall happen.

Chap. XLIII.

Of the strangulation of the wombe.

He strangulation of the wombe, or that commeth from the wombe, is an interception or stoppning of the liberty in breathing or taking wind, because that the wombe, swolne or puffed up by reason of the aesse of groffe vapours and humoursthat are contained therein, and also snatched as it were by a convulsive motion, by reason that the vessels and ligaments distended with fulneffe, are so carried upwards against the midriffe and parts of the breaste, that it maketh the breath to be short, and often as it a thing lay upon the brast and preffed it.

Moreover, the wombe swelleth, because there is contained or inclofed in it a certaine substance, cau'd by the defeution either of the seed or flowers, or of the womb or whites, or of some other humour, tumour, abscefe, rotten apoftume, or some ill juice, putrefying, or getting or engendering an ill quality, and resolved into groffe vapours. These, as they affeft sundry or divers places, inferre divers and sundry accidents, as rumbling and noyse in the belly, if it be in the guts, defir'd to vomit, as the accidents, ter (with seldom or vomiting) commeth wearineffe and loathing of meat if it trouble the stomack. Choaking with strangulation, if it affail the breath and throate; swooning, if it vex the heart; madneffe, or else that which is contrary thereto, found steep or drouinneffe, if it grieve the brain: all which oftentimes prove as malignant as the biting of a mad dogge, or equal the flinging or bitings of venemous beasts.

It hath been observed, that more grievous symptomes have proceeded from the corruption of the seed, than of the menstuarall bloud. For by how much every thing is more perfect and noble, while it is coneyned within the bounds of the integrity of its owne nature, by so much it is the more grievous and perillous, when by corruption it hath once transgressed the laws thereof. But this kind of accident doth very feldome grieve those women which have their menstuarall fluxe well and orderly, and doe use copulation familiarly, but very often those women that have not their menstuarall fluxe as they should, and do want, and are defitute of husbands, especially if they be great eaters, and lead a solitare life. When the vessels and ligaments of the wombe are swollen and distended as wee saide before, so much as is added to their latitude or breadth, so much is wanting in their length: and therefore it happeneth that the wombe, being removed out of its feate, doth one while fall to the right side towards the liver, sometimes to the left side towards the Mil, sometimes upwards unto the midriffe and stomacke, sometimes downwards, and so forwards unto the bladder, whereof commeth an Ichury and strangury; or backwards, where-
Concerning the Generation of Man.

But although we acknowledge the womb to decline to those parts which we named, yet it is not by accident only, as when it is drawn by the proper and common ligaments and bands, when they are contracted or made shorter, being diffused with fulness, but also of itself, as when it is forced or provoked through the grief of something contrary to nature that is contained therein: it wandeth sometimes unto one side, and sometimes unto another part, with a plain and evident natural motion, like unto the stomack which embraceth any thing that is gentle and mild, but avoydeth any thing that is offensive and hurtful, yet we deny that so great accidents may bee stirred up by the falling of it alone unto this or that side, for then it might happen, that women that are great with childe, whose wombes are fo diffused by reason that the childe is great, that it doth preffe the midriff, might be troubled with a strangulation like unto this, but much rather by a venemous humour breathing out a maligne and groffe vapour, not onely by the veines and arteries, but also by the pores that are invisible, which pollutes the faculties of the parts which it toucheth with its venemous malignity & infection, and intercepts the functions thereof. Neither doth the variety of the parts receiving only, but also of the matter received, cause variety of accidents.

For, some accidents come by suppreffion of the terms, others come by corruption of the feede, but if the matter bee cold, it bringeth a drouffinefle, being lifted up unto the braine, whereby the woman finketh down as if she were affonifhed, and without motion, and fcnfe of feeling, and the beating of the arteries, and the breathing are fo small, that sometimes it is thought they are not at all, but that the woman is altogether dead. If it be more groffe, it inferreth a convulsion if it participe of the nature of a groffe melancholick humour, it bringeth such heavinefle, and forrowfulnefle, that the party that is vexed therewith (hall thinketh that shee shall die presently, and cannot be brought out of this minde by any means or reafon: if of a choleric humour, it caufeth the madnefle called favor uterinus, and such a prating, that they speake all things that are to be concealed, and a giddinefle of the head, by reafon that the animal spirit is sudenly shaken by the admixtion of a putrefied vapour and hot spirit: but nothing is more admirable, than that this difeafe taketh the patient sometimes with laughing, and sometimes with weeping, for some at the firft will weep and then laugh in the fame difeafe and fiate thereof.

But it exceedeth all admiration which Hellerian writeth ufually happened to two of the daughters of the Provift of Roven. For they were held with long laughter for an houre or two before the fitte, which neither for fcare, admonition, nor for any other meane they could hold; and their parents chid them, and asked them wherefore they did fo, they anfwered, that they were not able toftey their laughter. The affection of the wombe is diligently to bee diftinguifh'd from the strangulation thereof; for the accidents of the affection and of the strangulation are not one, but the woman is onely opprefted with a certaine paine of the heart, difficulty of breathing, or swhouning, but yet without fear, without raving or idle talking, or any other greater accident.

Therefore oftentimes contrary causes inferre the affection: that is, overmuch dryneffe of the wombe, labouring through the defect of moyflyre, whereby it is forced after too violent and immoderate evacuations of the flowers, and in childbed, and suchlike, and laborious and painefull traveill in child-birth, through which occasion it waxeth hot, contrary to nature, and withereth and turns it felfe with a certaine violence unto the parts adjoining, that is to fay, unto the liver, stomake and midriff: if happily it may draw some moyflyre therehence unto it. I omit that the wombe may be brought unto its place upwards by often fmmelling to aromatrick things, yet in the meane while it infers not the strangulation that wee described before.
The signs of imminent strangulation of the womb.

Before that these forenamed accidents come, the woman thinks that a certain painfull thing ariseth from her womb unto the orifice of the for-macke and heart, and she thinketh her selfe to bee oppressed and choked, she complaineth her selfe to bee in great paine, and that a certain lump or heavy thing clims up from the lower parts unto her throat, and stoppeth her windes, her heart burneth and pantes. And in many the womb and vessels of the wombe so well, that they cannot stand upright on their legs, but are constrained to lye downe flat on their bellies, that they may bee the lesse grieved with the paine, and to presse that downe strongly with their hands, that seemeth to arise upwards, although that not the wombe it selfe, but the vapour ascendeth from the wombe, as wee said before: but when the fitte is at hand, their faces are pale, but their understanding is darkened, they become slow and weak in the legges, with unablencfe to ftand. Hereof commeth sound sleepe, foolish talking, interception of the fenses, and breath as if they were dead, loffe of speech, the contraction of their legs, and the like.

How to know whether the woman be dead in the strangulation of the wombe or not.

Have thought it meet because many women not only in ancient times, but in our owne and our fathers memory have beene so taken with this kind of symptome, that they have beene supposed and layd out for dead, although truly they were alive:) to fer downe the signes in such a cafe which do argue life and death. Therefore first of all it may be proved, whether she be alive or dead, by laying or holding a cleare and smooth looking glaffe before her mouth and nostrils. For, if she breathe, although it be never so obscurely, the thin vapour that commeth out will staine or make the glasse dussic. Also a fine downfull feather taken from under the wing of any bird, or else a fine flocke being held before the mouth, will by the trembling or shaking motion thereof, shew that there is some breath, and therefore life remaining in the body. But you may prove most certainly whether there be any spark of life remaining in the body, by blowing some smelling powders of pellitory of Spain, & ellebore into the nostrils. But though there be no breath appeare, yet must you not judge the woman for dead, for the small vitall heat, by which being drawn into the heart, she yet liveth, is contented with tranpiration only, and requires not much attraction, which is performed by the contraction & dilaration of the breast and lungs unto the preservation of its selfe. For so flies, gnats, pimfiers and such like, because they are of a cold temperament, live unmoveably inclosed in the caves of the earth, no token of breathing appearing in them, because there is a little heat left in them, which may be conferred by the office of the arteries and heart, that is to say, by perfpiration, without the motion of the breath, because the greatest use of respiration is that the inward heat may be preserved by refrigeration and ventilation. Tho'le that do not mark this, fall into that error which almost cost the life of him who in our time first gave life to anatomical administration, that was almost decayed and neglected.

For he being called in Spaine to open the body of a noble woman which was supposed dead through strangulation of the wombe, behold at the second impression of the incifion knife, she began suddenly to come to her selfe, and by the moving of her members and body, which was supposed to be altogether dead, and with crying, to shew manifell signes that there was some life remaining in her. Which thing
strooke such an admiration & horror into the hearts of all her friends that were present, that they accounted the Physician, being before of a good fame and report, as infamous, odious and detestable, so that it wanted but little but that they would have scratched out his eyes presently: wherefore he thought there was no better way for him, if he would live safe, than to forfake the country. But neither could he so easily avoyde the horrible pricke and inward wound of his conscience (from whose judgment no offender can be abfolved) for his inconfiderate dealing, but within few days after, being confumed with forrow, he died to the great lofe of the common wealth, and the art of physick.

C H A P. XLVII.

How to know whether the strangulation of the womb be comes of the suppression of the flowers, or the corruption of the feed.

There are two chief causes especially, as most frequently happening of the strangulation of the womb: but when it proceedeth from the corruption of the feed, all the accidents are more grievous and violent: difficulty of breathing goes before, and shortly after comes deprivation thereof, the whole habit of the body seemeth more cold than a stone: the woman is a widow: or else hath great flore or abundance of feed, and hath been used to the company of a man, by the absence whereof she was before wont to be paired with heavineffe of the head, to loath her meat, and to bee troubled with fadneffe and fear, but chiefly with melancholy. Moreover when she hath satisfied, and every way fulfilled her lust, and then profily on a sudden begins to containe her selfe. It is very likely that fhe is suffocated by the suppression of the flowers, which formerly had them well and sufficiently, which formerly had bin fed with hot, moift, and many meats, and therefore engendering much bloud, which fitteth much, which is grieved with some weight and swelling in the region of the belly, with paine in the stomacke, and a defire to vomit, and with fuch other accidents as come by the suppression of the flowers. Those who are freed from the fit of the suffocation of the womb, either by nature or by art, in a short time their colour commeth into their faces by little and little, and the whole body beginneth to wax strong, and the teeth, that were fett and clofcd fast together, begin (the jaws being loofed) to open and unclofe againe, and lastly, some moisture floweth from the secret parts with a certaine tickling pleafure; but in fome women, as in thofe especially in whom the necke of the womb is tickled with the mydiveis finge, in ftead of that moisture comes thick and grofse feed, which myf- tioure or feed when it is fallen, the womb being before as it were raging, is refored unto its owne proper nature and place, and by little and little all fymptomes vanifh away. Men by the suppression of their feede have not the like symptoms as women have, because mans feed is not fo cold and moift, but far more perfed and better digefled, and therefore more meet to refift putrefadlion, and whiles it is brought or drawn together by little and little, it is disfipated by great and violent exercife.

C H A P. XLVIII.

Of the cure of the strangulation of the womb.

Being that the strangulation of the wombbe is a sudden and sharp difeafe, it therefore requireth a prefent and speedy remedy, for if it be neglected it many times caufeth prefent death. Therefore, when this malady commeth, the fick woman must prefently be placed on her back, leaving her breath and stomacke loofe, and all her clothes & garments flack & loofe about her, whereby she may take breath the more easilly, and she muft be called on by her owne name, with a loud voice in her ears, and pulled hard by the haires of the temples
Concerning the Generation of Man.

Concerning the generation of Man, as well as the temples and neck, but yet especially by the hair of the secret parts, that by provoking or causing pain in the lower parts, the patient may not only be brought to her self againe, but also that the sharp and malignant vapour ascending upwards, may be drawn downwards: the legs and arms must be bound and tied with painfull ligatures, all the body must be rubbed over with rough linnen clothes besprinkled with salt and vinegar, until it be very sore and red, and let this pessary following be put into the womb. 

*Pessary.*


2. *Pessary.*

3. *iii. pul. radic. cant. galang. min. an. 3 i. make thereof a pessary.*

Then let the soles of her feet be anointed with oil of bays, or with some such like oil, let a great cupping-glass with a great flame be applied to the belly below the navell, to the inner part of the thigh, and to the groin, whereby both the matter that climes upwards, and also the womb it self running the same way, may be brought downwards or drawn back. There may be made a fumigation of spices to be received up into the womb, which, that it may be the easier done, the womb may be held open by putting in this instrument here described into the neck thereof. Let it be made of gold, silver or latin into the forme of a pessary; at the one end thereof, that is to say, that end which goeth up into the necke of the wombe, let there be made many holes on each side, but at the lower end let it be made with a spring, that it may open and shut as you will have it. Also it must have two laces or bands by which it must be made fast unto a swathe or girdle tied about the patients belly.

*The forme of a Pessary to be put into the neck of the wombe to hold it open.*
Concerning the Generation of Man.

The description of a vessell made with a senneller pipe for to fumigate the wombe.

The matter and ingredients of sweet and aromaticke fumigations, are cinnamon, cajal, aromat. lig. aloes, ladanum, benzoine, thyme, pepper, cloves, lavender, calamint, mugwort, penniroyall, alepia moschata, nutmegs, muske, musfe, amber, equisant, and such like, which for their sweet smell and sympathy, allure or entice the fweet fumigations worme downwards by their heat consumed and digested the thicke vapours, and putrefied ill juice. Contrariwise, let the nostrils be perfumed with fetid and ranke smels, and let these be made with gum, galbanum, saepenum, ammoniacum, ajsa felida, hispanes, oyle of Jear, snuffe of a tallow candle when it is blowen out, with the fume of birds feathers, especially of Partridges and Woodcocks, of mans haire or goats haire, of old leather, of horse hooves, and such like things burned, whose noyse or offensive favor the wombe avoyding, doth returne unto its owne place or feste againe.

Moreover it shalbe very necessary to procure vomit by thrusting a goode feather downe into the throate, or else the haires of the patients owne head. Shortly after shee must use a potion of fienteene grains of blacke pepper bruised and difsolved in hydromel, or water and liony mixed together, or in some strong wine, which remedy Avicenna holdeth for a secrect.

Also in sted thereof three hours before meat 5 c. of treacle dissolv'd in 5 i. of the water of worme wood may be given her: Also it is thought that one drop of the oyle of Jear dropped on the tongue, is a very profitable remedy. There bee some that allow a potion of halfe a dram of Caflerorum dissolv'd in white wine, or in the broth of a capon: also it is profitable not only to give her treacle to drinke, but al-
Concerning the Generation of Man.

...to inject it into the womb, being first dissolved in aquavitae, and in the meantime to drop two drops of oyle of fage, or some such chymical oyle into the eyes, to make the womb...If the bee droffe or sleep, she must be awaked or kept waking with fweeping powder of white eleborate and pelletories.

It is also requisite to inject glister both into the fundament and secret parts, which must be made of the decoction of things that diſcase the windes, as of colonym, mugwort, lavender, pennyroyal, chamomel, melilot, and such like; and let the peelettes or fappelettes be made of ladadum, ginger, gallic mottear, melile, mithridate, cicer, and muske, of the oyle of coloves, annifeeds, fage, tofenmary, and such like, chymically drawn; this following is a convenient description of a glister. 

...The master of secretaries.

It is alſo for the use to inject glyfters both into the fundament and fecret parts which must be made of the deſcription of things that diſce the windes, as of colonym, mugwort, lavender, pennyroyal, chamomel, melilot, and such like; and let the peelettes or fappelettes be made of ladadum, ginger, gallic mottear, melile, mithridate, cicer, and muske, of the oyle of coloves, annifeeds, fage, tofenmary, and such like, chymically drawn; this following is a convenient description of a glister. 

...A glister feat-tering greefie vapours.

...The quickerns, & a pleafant remedy for the fuffocation of the womb.

...Teaſholders of the neck of the womb.

Chap. XLIX.

Of women's monethly fluxes or courſes.

Usually they call the fluxe of blood, that diſcharges from the fecret parts of women, monethly flowers or courſes, becaufe it happeneth to them thenames of every month fo long as they are in health. There bee fome which call themterres, becaufe they returne at their uſuall time. Many of the French men call it fepmaines, becaufe in fuch as fit much, and are given to plentiful feeding, it endureth almost for the space of seven dayes. Some call them purgations, becaufe that by this fluxe all a womans body is purged of superfluous humours. Thercbee fome alſo that call thofe fluxes the flowers, becaufe as in plants the flower buddeth out before the fruits, or the conception thereof. 

For the courſes flow not before a woman bee able to conceive: for how should the feede being caſt into the wombe have his nourifhment and encreafe, and how fhould the child have his nourifhment when it is formed of the feed, if this neceſſary humour were wanting in the wombe? yet it may beeſome women may conceive without this fluxe of the courſes: but that is in fuch as have fo much of the humour gathered together, as is wont to remaine in thofe which are purged, although it bee not fo great a quantity that it may flow out, as it is recorded by Arifitoile. But as it is in fome very great, and in fome very little, fo it is in fome feldome, and in fome verſe.

There are fome that are purged twice, and fome thrice in a moneth, but it is al-

together.
Concerning the Generation of Man.


What women have this most-fluid flux of semen, abundantly & for a longer space than others.

What women have the flux more faldous, lifelong & far more frequent than others.

Why young women are purged in the new of the Moon.

Why old women are purged in the wane of the Moon.

Together in those who have a great liver, large veins, and are filled and fed with many and greatly nourishing meats, which sit idly at home all day, which having slept all night, doe notwithstanding lie in bed sleeping a great part of the day also, which live in a hot, moyst, rainy and southerly ayre, which use warme bates of sweet waters and gentle frictions, which use and have greatly delighted with carnall copulation: in these and such like women the courses flow more frequently and abundantly.

But contrariwise, in those that have small and obscure veins, in those that have their bodies more furnifhed and bigge either with flesh or with fat, are more feldome purged, and also more sparingly, because that the superfluos quantitie of bloud neith to go into the habit of the body. Also tender, delicate and faire women are little purged than those that are brownne and ended with a more compact flesh, because that by the rarity of their bodies, they suffer a greater wafting or dissipation of their substance by tranpiration. Moreover, they are not so greatly purged with this kind of purgation, which have some other solemne or accustomed evacuation in any other place of their body, as by the nose or hemorrhoids.

And as concerning their age, old women are purged when the Moone is old, and young women when the Moone is new, as it is thought. I think the cause thereof is, for that the Moone ruleth most of the bodies, far by the variable motion thereof the Sea flowereth and detheth, and bones, marrow and plants abound with their genital humour.

Therefore young people which have much bloud, and more flexible, and their bodies more flexible, are sooner moved unto a fluxe, although it bee even in the first quarter of the Moones rising or increasing: but the humour of old women, because they wax spiritus as if it were with cold, & are not so abundant, and have more dense bodies and straignter vessels, are not so apt to a fluxe, nor do they so easily flow, except it bee in the full of the Moon, or else in the decrease, that is to say, because the blood that is gathered in the full of the Moon falls from the body even of its own weight, for that by reason of the decreasing or wan of the Moone this time of the month is more cold and moist.

Chap. L.

The causes of the monethly flux or courses.

Because a woman is more cold, and therefore hath the digestive faculty more weak, it commeth to pass, that shee requireth and desireth more meat or foode than shee can digest or concoct: And because that superuous humour that remaineth is not digested by exercise, nor by the efficacy of strong and lively heat, therefore by the providence or benefit of nature it floweth out by the veins of the woman, by the power of the expansive faculty, at its owne certaine and prefixed feason or time. But then especially it beginneth to flow, and a certaine crude portion of bloud to bee expelled, being hurtfull and maligne otherwise in no quality, when nature hath laid her principal foundations of the encreafe of the body, so that in greatnesse of the body, the hath come as it were in a manner to the highest toppe, that is to say, from the thirteenth to the fiftieth yeare of our age.

Moreover, the childe cannot bee formed in the wombe, nor have his nutriment or encreafe without this fluxe; therefore this is another small cause of the monethly flux. Many are perswaded that women doe faire more abound with bloud than men, considering how great an abundance of bloud they cast forth of their secret parts every moneth, from the thirteenth to the fiftieth yeare of their age: how much women great with childe, of whom also many are menstruall, yeeld unto the nutriment and encreafe of the childe in their wombes, and how much Physicians take from women that are with childe by opening of a vein, which otherwise would bee delivered before their natural and prefixed time, how great a quantity thereof they
they avoid in the birth of their children, and for ten or twelve days after, and how great a quantity of milk they spend for the nourishment of the child when they give sucke, which milk is none other thing than blood made white by the power of the kernels that are in the dugges, which doth suffice to nourish the child, be he great or little; yet notwithstanding many nurses in the mean while are menstruall: and as that may be true, so certainly this is true, that one dram rac (that I may so speake) of a mans blood, is of more efficacy to nourish and encrease, than two pounds of womans blood, because it is farre more perfect, more concocted, wrought, and better replenished with abundance of spirits: whereby it commeth to passe that a man endowed with a more strong heart, doth more easily convert what meat soever he eateth unto the nourishment & substance of his body; & if that any superfluity remains, he doth easilly digest and scatter it by insensible transpiration. But a woman being more cold than a man, because she taketh more than she can concoct, doth gather together more humours, which because she cannot disperse, by reason of the imperfectness and weakenesse of her heat, it is necessary that she should suffer, and have her monethly purgation, especially when she groweth unto some bignesse; but there is no such need in a man.

CHAP. LI.
The cauSES of the suppressien of the courses or menstruall fluxe.

The courses are suprrefsed or stopped by many causes, as by sharp vehement, and long diseases, by feare, sorrow, hunger, immoderate labours, watchings, fluxes of the belly, hot morrhoides, fluxes of blood at the mouth, and evacuations in any other part of the body whatsoever, often opening of a vein, great sweats, ulcers flowing much and long, scabbinelle of the whole skinne, immoderate grossenelle and clamunnelle of the blood, and by eating of raw fruites, and drinking of cold water, by flaggishnine and thicknese of the vesels, and also the obstruction of them by the defaults and diseases of the wombe, by diftempature, an abcesse, anulcer, by the obstruction of the inner orifice thereof, by the growing of a Callus, caruncle, cicatrize of a wound or ulcer, or membrane growing there, by injecting of astringent things into the necke of the wombe, which place many women endeavour foolishly to make narrow: I speake nothing of age, greatnesse with child, & nurfing of children, because these causes are not besides nature, neither doe they require the help of the Phyfician.

Many women, when their flowers or tearmes are stopped, degenerate after a manner into a certaine manly nature, whence they are called Viragines, that is to say, stout, or manly women; therefore their voice is more loud and bigge, like unto a mans, and they become bearded.

In the city Abdera (faith Hippocrates) Phaedusa the wife of Pytheas at the first did beare children and was fruitful, but when her husband was exiled, her flowers were stopped for a long time; but when these things happened, her body became manlike and rough, and had a beard, and her voice was great and thrill. The very same thing happened to Namfia the wife of Gorgippus in Thasus. Thofe virgins that from the beginning have not their monethly fluxe, and yet neverthelesse enjoy their perfect healt, they must necessarilie be hot and dry, or rather of a manly heat and dryneffe, that they may so differfe and dissipate by transpiration, as men doe, the crements that are gathered, but verily all fuch are barren.
Concerning the Generation of Man

Chap. LII.

What accidents follow the suppression or stopping of the monthly fluxe or flowers.

When the flowers or monthly flux are stopped, diseases affect the womb; and from thence pass into all the whole body. For there of commeth suffocation of the womb, head ache, swooning, beating of the heart, and swelling of the breasts and secret parts, inflammation of the womb, an abscess, ulcer, cancer, a fever, nausea, vomiting, difficult and slow concoction, the droppings, stran-
sury, the full womb being pressed upon the orifice of the bladder, blacke and bloody urine, by reason that portion of the blood sweareth out into the bladder. In many women the stopped matter of the monethly flux is excluded by vomiting, urine, and the hemorrhoids, in some it groweth into tumors. In my youth, when she was a maid, the menstrual matter was excluded and purged by the nostrils. The wife of Peter Fiore of Caffeudeau was purged of her menstrual matter by the dugges very moneth, and in such abundance, that scarce three or foure cloaths were able to dry it and sticke it up.

In those that have not the flux monethly to evacuate this plentitude by some part or place of the body, there often followes difficulty of breathing, melancholy, madness, the gout, an ill disposition of the whole body, dissolution of the strength of the whole body, want of appetite, a consumption, the falling sicknesse, an apoplexy.

Those whose blood is laudable, yet not so abundant, doe receive no other disorder by the suppression of the flowers, unless it be that the womb beurnes or itcheth with the desire of copulation, by reason that the womb is distended with hot and itching blood, especially if they lead a sedentary life. Those women that are not so grieved and evil at cause when their flowers are stopped by any chance contrary to nature, as those women which did never conceive, because they have beene used to be filled, and the vessels by reason of their customary repletion and distention, are more large and capacious: when the courses flow, the appetite is partly desirous, for that nature, being then wholly applied to expulsion, cannot thoroughly concoct or digest, the face waxeth pale, and without its lively colour, because that the heat with the spirits, go from without inwards, so to helpe and aide the expulsive faculty.

Chap. LIII.

Of provoking the flowers or courses.

The suppression of the flowers is a plethorick disease, and therefore must be cured by evacuation, which must be done by opening the vein called Saphena, which is at the ankle, but first let the basilike vein of the arm be opened, especially if the body bee plethoricke, lest that there should a greater attraction be made into the womb, and by such attraction or flowing in, there should come a greater obstruction. When the veins of the womb are distended with so great a swelling that they may be seen, it will be very profitable to apply horse-leeches to the necke thereof: pestles for women may be used; but infusions of aromaticke things are more meet for maides, because they are bathfull and shamede. Unguents, liniments, compras, that serve for that matter, are to bee prescribed and applied to the secret parts, ligatures and fracisions of the thighs and legs, and not to bee omitted, fomentations and fomentations are to be used, and cupping glasses are to be applied to the groines, walking, dancing, riding, often and wanton copulation with her husband, and such like exercices, provoke.
Concerning the Generation of Man.

Plants that provoke the flowers.

1. VokchTfl^vcrs. O  f  plants, the flowers of St. John's wort, the rootes of fennell, and
apharagus, brucus or butchers broom, of parsley, brooke-lime, onioons, crifta marina, colffmary, the rinde or bark of califa situlata, cala-
mine, origanum, penanyroyall, mugwort, thyme, hiflope, fage, marjoram, rosefa-
ry, horehound, rue, favin, spurge, faffion, argaricke, the flowers of elder, bay ber-
ries, the berries of ivie, freammony, CHATHARIDES, pyretchrum or pellitory of Spaine, 
euphorbium. The aromaticke things are anomum, cynamon, lquinanth, nimmego, ca-
Sweet things.

The apozeme that followeth is proved to be very effeclual. R. fol. & flor. dilatam
are, p. ii. pimpcinal. m f. omnium capillar. an. p i. artemis. thymi. major. origan. an. m f., 
rad. rub. major, petrolein. famical. an. s i. rad. pan. bifeort an. s i. citrum. rub. f.m.
pan. famical. an. s i. make thereo a decoction in a fufficient quantity of water, add-
gthereto cinamon s iii. in one pinte of the decoction dissolve (after it is strained) of the fyrue of mugwort, and of hiflope. an. s ii. diyrbud. abbat. s iii. let it bee strained through a bagge, with s iii. of the kernels of dates, and let her take s iii. in the morning.

Let pellaries bee made with galbanum, ammoniacum, and fuch like mollifying
things, beaten into a maffe in a mortar with a hot pestell, and made into the forme of a
pellary, and then let them be mixed with oile of Jasmine, euphorbium, an oxegall, 
the juice of mugwort, and other fuch like, wherein there is power to provoke the
flowers, as with freammony in powder: let them be as bigge as one thumbbe, fixe finges
long, and rawled in the lawne, or fome fuch like thinne fritten cloathes of the fame
things nodula's may bee made. Also pellaries may be prepared with hone boyled, 
adding thereto convenient powders, as of feammony, pellitory, and fuch like. Nei-
ther ought thefe to lay long in the necke of the wombe, left they shoule exulcerate, 
and they must be pulled backe by a thred that muft bee put through them, and then 
the orifice of the wombe muft be fomected with white wine of the decoction of pen-
anyroyall or mother-wort.

But it is to be noted, that if the fuppression of the flowers happeneth through the
default of the ftopped orifice of the wombe, or by inflammation, these maladies muft
be cured before we come unto those things that of their proper strength and
verte provoke the flowers: as for example, if fuch things be made and given when the
wombe is enflamed, the blood being drawne into the grieved place, and the hu-
mours harpened, and the body of the wombe heated, the inflammation will be en-
creased. So if there bee any superfluous fleeth, if there be any Callus of a wound or ul-
er, or if there bee any membrane falling the orifice of the wombe, and fo fopping the
fluxe of the flowers, they muft be cured and taken away before any of
those things be administered.

But the opportunity of taking and applying of things, must be taken from the time wherein the ficke woman was wom to be purged before the
fopping, or if the never had the flowers, in the decreafe of the moone: for we
shall have cutome, nature, and the external efficenct caufe to helpe art. When these
medicines are used, the women are not to bee put into bathes or hot houles, as many
doe, except the malady proceed from the dentity of the vefsels, and the grof[enefe 
and claminnefe of the blood. For sweats hinder the menouall fluxe, by diverting 
and turning the matter another way.
The signs of the approaching of the menstrual fluxe.

When women do love and what women do both the act of generation when the months are stopped.

With what accidents those that are marriageable and are not married are troubled.

The cause of so many accidents.

The efficient cause of the milk is to be noted.

Concerning the Generation of Man.

Chap. LIII.

When the monthly fluxe first approacheth, the dugges itch and become more swollen and hard than they were wont, the woman is more delectious of copulation, by reason of the ebullition of the provoked blood, and the acrimony of the blood that remaineth, her voice commeth bigger, her secret parts itch, burn, swell, and waxe red. If they stay long, she hath paine in her loines and head, nauseoufness and vomiting troubleth the stomacke: notwithstanding, if those matters which flow together in the womb, either of their own nature, or by corruption, be cold, they loath the act of generation, by reason that the womb doth a feble fluid through fisgillinesse and watery humours filling the same, and it floweth by the secret parts very softly. Those maides that are marriageable, although they have the mensuall fluxe very well, yet they are troubled with head ache, nauseoufness, and often vomiting, want of appetite, rising, melancholy, tearfull dreams, watching, with faintnesse and heavinesse, because that the generall parts burning & itching, they imagine the act of generation, whereby it commeth to passe that the seminall matter, either remaining in the testicles in such an abundance, or else powdered into the hollownesse of the womb, by the tickling of the genitalis, is corrupted, and acquireth a venemous quality, and causeth such like accidents as happens in the suffocation of the womb.

Maides that live in the country are not so troubled with those diseases, because there is no such lying in wait for their maiden-heads, and also they live sparingly and hardly, and spend their time in continuall labour. You may see many maides so full of juice, that it runneth in great abundance, as if they were mensuall, into their dugges, and is there converted into milk, which they have in as great quantity as nurses, as we read it recorded by Hippocrates. If a woman which is neither great with child, nor hath born children, hath milk, she wanteth the mensuall fluxes; whereby you may understand that that conclusion is not good which affirmeth that a woman which hath milk in her breasts, either to be delivered of childe, or to be great with childe: for Cardanus writeth that hee knew one Antony Batusus at Gemina, who being thirty yeeres of age, had so much milk in his breasts as was sufficient to nurse a child, for the breeding and efficient cause of milk proceeds not onely from the engrafted faculty of the glandulous sub stance, but much rather from the action of the mans feed; for proofe whereof you may see many men that have very much milk in their breasts, and many women that almost have no milk, unless they receive mans feed. Also women that are strong and lusty like unto men, which the Latines call Viragine, that is to say, whose feed commeth unto a manly nature, when the flowers are stopped, conceit the blood, and therefore when it wanteth passage forth, by the likeness of the substance it is drawne into the duggs, and commeth perfect milk: those that have the flowers plentifully and continually for the space of foure or five daies, are better purged and with more happy successe than those that have them for a longer time.
CHAPTER LV.

What accidents follow immoderate fluxes of the flowers or courses.

If the menstrual flux floweth immoderately, there also follow many accidents; for the coagulation is frustrated, the appetite overthrown, then floweth coldness throughout all the body, exsolution of all the faculties, an ill habite of all the body, leanness, the drooping, a hecticke feaver, convulsion, inswarming, and often sudden death: if any have them too exceeding immoderately, the blood is sharp and burning, and also thinking, the sick woman is troubled with a continuall feaver, and her tongue will be dry, ulcers arise in the gums and all the whole mouth. In women the flowers doe flow by the veins and arteries which rise out of the spermaticke vessels, and are ended in the bottom and sides of the womb; but in virgins and women great with child, whose children are found and healthfull, by the branches of the hypogastrick veins and arteries, which are dried and dispersed over the necke of the womb. The cause of this immoderate flux is in the quantity or quality of the blood, in both the fault is unreasonable copulation, especiell by a man that hath a yard of monstrous greatness, and the disolution of the retentive faculty of the vessels: oftentimes also the flowers flow immodestly by reason of a painful birth of the child or the after-birth, being pulled by violence from the corydeons of the womb, or by reason that the veins and arteries of the necke of the womb are torn by the coming forth of the infant with great travaile, and many times by the use of sharpe medicines, and excelerating pelleries. Oftentimes also nature avoids all the juice of the whole body critically by the womb after a great distempe, which flux is not rashly or disdainfully to be stopped. That menstrual blood that floweth from the womb is more grosse, blanke, and clowy, but that which commeth from the neck of the womb is more clere, liquid and red.

CHAPTER LVI.

Of stopping the immoderate flowing of the flowers or courses.

You must make choice of such meats and drinkes as have power to incratethe blood, for as the flowers are provoked with meats that are hot, and of subtile parts, so they are stopped by such meats as are cooling, thickening, attingent and fliptick, as are barley waters, foddan rice, the extreme parts of beasts, as of oxen, calves, sheep, either fried or foddan with forre, pulline, plantaine, thepeards purife, lumach, the buds of brambles, berberries, and such like. It is supposethat a harts horne burned, wafled, and taken in attingent waters, will stoppe all immoderate fluxes; likewise fangui dracentis, terre foillata, bulbos armens, topi humatis, corall beaten into most subtile powder and drinke in fliptick water; also poppe made with milk, wherein deceit hath often times been quenched, and the juice of wheat, barley, beans or rice, is very effectuall for the same. Quinces, services, medlars, cornelian berries, or cherries may likewise be eaten at the second course. Juleps are to be beused of fliptick waters, with the syrence of dry roses, pomegranates, forrell, myrtles, quinces, or old conferves of red roses, but wine is to bee avoided; but if the strength be so extenuated that they require it, you must choose grosse and astringent wine tempered with fliptick water, exercices are to be blunnted, especielly venereous exercises, anger is to bee avoided, a cold aire is to be chosen, which, if it be not so naturally, must bee made fo by sprinkling cold things on the ground, especielly if the summer or heat bee then in his full strength; found sleepeing stayes all evacuations except sweating. The opening of a vein.
Concerning the Generation of Man.

Lib. 24.

veine in the arm, cupping glassies fastened on the breasts, bands, and painfull fricti-
on of the upper parts are greatly commended in this malady.

But if you perceive that the cause of this accident lieth in a cholerick ill juice mix-
ed with the blood, the body must be purged with medicines that purge choler and
water, as Rubarb, Myrrobolanes, Tammaruds, Sebeften, and the purging syrupe of
roses.

Chap. LVI.

Of local medicines to be used against the immoderate flowing
of the Course.

Liso uguents are made to stay the immoderate fluxe of the tearmes, and
likewise injections and peffaries. This or such like may bee the form of
an uguent. R. ole, mopsich, & myrt, an. 3 li. maceum cupref. othban, myrt. an.
3 li. faxi refr. rubr. 3 li. pulp, mopsichen. 3 li. bals armen. terra fends, an.
3 li. serae quattuorref. (sit, hast uguentum). An injection may be thus made. R. aq.
plantag, refar. rubrar. bursa gelater. centinodi. an. 1 B. corticis gerni. maceum cupref.
gellar. non maturar. an. 3 li. berberis. famach. balafst. alnoen. rubr. an. 3 li. make there-
of a decoction, and inject it with a syringe blunt pointed into the wombfe, left if it
should be sharpe it might hurt the sides of the necke of the wombe, also smaltes bea-
ten with their shells, and applied to the navell, are very profitable. Quinces roasted
under the coals, and incorporated with the powder of myrtills, and bode armenicke,
and put into the necke of the wombbe, are marvellous effectuall forthis matter. The
forme of a peffary may be thus. R. gallar. immaturar. combasst. & inacerto extindas.

Altering peff-
aries.

3 li. amm. 3 li. sang, dracen. pul. rad. fympht. famach. mopsich. faxi acuit. cornu cer.
afi. calophan. myrrhae. corta fersi. an. 3 li. caporu. 2 li. mixte them, and incorporate
them all together with the juice of knot-grasse, sycrgreend, night-shade, loparne, wa-
ter lilies, plantaine, of each as much as is sufficient, and make thereof a peffary.

Cooling things, as oxyzrate, uguentum rofatum, and such like, are with great
profit ufed to the region of the loines, thighes, and genitall parts: but if this im-
moderate flux doe come by erosion, so that the matter thereof continually exulcerateth
the necke of the wombbe, let the place be anointed with the milke of a bee Als, with
barly water, or binding and astringent mucelages, as of philum, quinces, gumme
tragacanth, arabicke, and such like.

Chap. LVIII.

Of womens fluxes, or the Wombes.

The region

of the name.
The differences.

What women
are subject to this flux.

Besides the forenamed fluxe, which by the law of nature happeneth to
women monethly, there is also another called a womens fluxe, because
it is only proper and peculiar to them: this sometimes weareth the
woman with a long and continual distillation from the wombbe, or
through the wombbe, coming from the whole body without paine, no
otherwise than when the whole superfluous filth of the body is purged by the reines
or urine: sometimes it returneth at uncertaine seasons, and sometimes with pain and
exulcerating the places of the wombbe; at diversitie from the mensstrual fluxe, because
that this for the space of a few days, as it shall seeme convenient to nature, casteth
forth laudable blood, but this womens fluxe yeeldeth impure ill juice, sometimes fa-
nious, sometimes serous and livide, otherwhiles white and thicke, like unto barly
creame, proceeding from stegmaticke blood: this last kind thereof is most frequent.
Therefore wee see women that are stegmaticke, and of a fofe and loose habite of
body, to be often troubled with this diseafe, and therefore they will say among them-
seves
Concerning the Generation of Man.

Selves that they have the whites. And as the matter is divers, so it will stain their smocks with a different colour. Truly if it bee perfectly red and fanguine, it is to be thought that it commeth by erosion, or the exsolution of the substance of the ves- 

fels of the wombe, or of the necke thereof: therefore it commeth very seldomly of blood, and not at all except the woman be either great with child, or ceas to be menstrual for some other cause; for then in stead of the monthly fluxe there floweth a certain way, unction, which staineth her cloaths with the colour of water wherein flesh is washed.

Also it is very seldom proceeds of a melancholy humour, and then for the most part it causeth a cancer in the wombe. But often times the purulent and bloody matter of an ulcer lying hidden in the wombe, deceiveth the unskilfull Chirurgian or Physitian: but it is not so hard to know these diseases one from the other; for the matter that floweth from an ulcer, because (as it is said) it is purulent, it is also loffer, grofer, sticking, and more white. But those that have ulcers in those places, especially in the necke of the wombe, cannot have copulation with a man without paine.

CHAP. LIX.

Of the cause of the Whites.

Oftimes the cause of the whites consisteth in the proper weakness of the wombe, or else in the uncleanesse thereof, and sometimes by the default of the principal parts. For if the brain or the stomack be cooled, or the liver stoppeth or fchorous, many crudities are engendered, which if they runne or fall downe into the wombe that is weake by nature, the cause the fluxe of the wombe, or whites: but if this fluxe be moderate and not sharp, it keepesthe body from maligne diseases; otherwise it slueth to inferre a consumption, leannesse, paleness, and an edematous swelling of the legges, the falling downe of the wombe, the dejection of the appetit and all the faculties, and continuall fadness and forrowfulnesse; from which it is very hard to perdwade the sicke woman, because that her minde and heart will bee almost broken, by reason of the faine that thee taketh because such filth floweth continually; it hindereth conception, because it either corrupteth, or driveth out the seed when it is conceiv'd. Often times, if it stoppeth for a few moneths, the matter that floweth there causeth an abstinence about the wombe in the body or necke thereof; and by the breaking of the abstinence there followeth rotten and cancerous ulcers, sometimes in the wombe, sometimes in the groine, and often in the hippes.

This diseafe is hard to bee cured, not onely by reason of it selfe, as because all the whole filth and superfusious excrements of a womans body floweth downe into the wombe, as it were into a sink, because it is naturally weak, hath an inferiour situtation, many vellis sending therein; and last of all, because the courseth are wont to come through it; as also by reason of the sicke woman, who often times had rather dye, than to have that place feene, the diseafe knowne, or permit local medicines to bee applied thereto: for so faith Montanus, that on a time hee was called to a noble wo- 
mans of Italy who was troubled with this diseafe, unto whom hee gave counsell to have cleansing decoctions injected into her wombe, which when shee heard, she fell into a frowne, and desir'd her husband never thereafter to use his counsell in any thing.
The Cure of the Whites.

If the matter that floweth out in this disease bee of a red colour, it differeth from the natural monthly flux in this only, because it keeps no order or certain time in its returning. Therefore phlebotomy and other remedies which we have spoken of, as requisite for the menstrual flux when it floweth immoderately, is here necessary to be used. But if it bee white, or doth testify or argue the ill juice of this or that humour by any other colour, a purgation must be prescribed of such things as are proper to the humour that offends: for it is not good to stop such a flux suddenly; for it is necessary, that to the body should be purged of such filth or abundance of humours: for they that doe hinder to stop it, cause the dropsie, by reason that this finke of humours is turned backe into the liver, or else a cancer in the womb, because it is stayed there; or a fever, or other diseases, according to the condition of the part that receiveth it. Therefore we must not come to local deterreives, descriptives, restrictive, unless we have first used universal remedies according to art. Atom baths, baths of brimstone, and of bitumen, or iron, are convenient for the whites that come of a phlegmatic humour; instead whereof baths may be made of the decoction of herbs that are hot, dry, and ended with an aromaticke power, with alone and pebbles, or silt-stones red hot thrown in the fame. Let this bee the forme of a cleaning decoction and injection. R. ses. absynth. agrimon. cent. nod. burs. papi. an. 4,5, boyle them together, and make thereof a decoction, in which dissolvemellisasarfl., 3. i. aloes, myrica, fals nitri, an. 5. i. make thereof an injection, the woman being so placed on a pillow under her buttockes that the necke of the womb being more high, may be wide open: when the injection is received, let the woman let her legges acroffe, and draw them up to her buttockes, and to the head which is injected. They that endeavour to dry and bind more strongly, add the juice of scarra, greene gellers, the rindes of pomegranates, roch alone, romane vittrioll, and they boile them in Smithes water and red wine; pellaries may be made of the like facility.

If the matter that commeth forth be of an ill colour or smell, it is like that there is a rotten ulcer; therefore we ought to inject those things that have power to correct the putrefaction, among which egypciaum, dissolved in lye or red wine, excelleth. There are women which when they are troubled with a virulent Genorches, or an involuntary fluxe of the seed, cloaking the fault with an honest name, doe untrue say that they have the whites, because that in both these diseases a great abundance of filth is voided. But the Chyrurgian may easily perceive that malady by the rottennesse of the matter that floweth out, and hee shall perwade himselfe that it will not bee cured without salivation or fluxing at the mouth, and sweats. In the meantime while he put him in an instrument made like unto a pessary, and cause the sick woman to hold it there: this instrument must have many holes in the upper end, through which the purulent matter may passe, which by stayling or stopping might get a sharpe needle; as also that so the womb may breathe the more freely, and may be kept more temperate and coole by receiving the aire, by the benefite of a spring whereby this instrument, being made like unto a pessary, is opened and shut.
Chap. LXI.

Of the hemorrhois and warts of the neck of the wombe.

Like as in the fundament, so in the necke of the wombe there are heemorrhoides, and as it were varicous veins, often times flow- ing with much blood, or with a red and stinking whayle humor. Some of these by reason of their redness and great inequality as it were of knobs, are like unripe mulberries, and are called vulgarly vena morales, that is to say, the veins or heemorrhoides like unto mulberries; others are like unto grapes, and therefore are named vales; other some are like unto warts, and therefore are called vena verrucales; some appear & show themselves with a great tumour, others are little and in the bottome of the neck of the wombe, others are in the side or edge thereof. Achrochordon is a kinde of wart, with a callous bunch or knot, having a thin or slender root, and a greater head, like unto the knot of a rope, hanging by a small thread; it is called of the Arabians, verruca botoralis.

There is also another kinde of wart, which because of his great roughness and unequality is called thymes, as resembling the flower of Thyme. All such diseases are exalted and made more grievous by any exercise, especially by venecous acts: many times they have a certaine malignity, and an hidden virulency joyned with them, by occasion whereof they are aggravate even by touching onely, because they have their matter of a raging humour: therefore to these we may not rightly use a true, but onely the palliative cure, as they term it: the Latines call them one- ly fluxes, but the French men name them with an adjunc, St. Fiacritis ligges.
Of the cure of the Warts that are in the necke of the wombe.

He warts that grow in the necke of the wombe, if they bee not maligne, are to bee eyed with a thread, and so cut off. Those that lyeth more deep in the wombe, may be seene and cured by opening the matrix with a dilater made for the purpose.

Divers Specula matricis, or Dilators for the inspection of the matrix.

Another forme of a dilater or Speculum matricis, whereof the declaration followeth.

A. sheweth the screw which butteth and openeth the dilater of the matrix; B B. shew the armes or branches of the instrument, which ought to be eight or nine fingers long.
Concerning the Generation of Man.

But these dilaters of the matrix ought to be of a bigness correspondent to the patient's body; let them be put into the matrix when the woman is placed as we have said, when the child is to be drawn out of her body. That instrument is most meet to tire the warts, which we have described in the relaxation of the palate or vulva; let them be tied harder and harder every day until they fall away. Therefore for the cutting of warts there are three chief scopes, as bands, fections, cauteries, and let them grow up again, let yole of vitrioll be dropped on the place, or aqua fortis, or of some of the yce wherewith potentiall cauteries are made. This water following is most effectual to consumne and waffe warts. R. ag. plantag. ½ vi. virid. aris. 3 ii. aleum. och. 5 sail. fus. rom. & sublim. aq. 3 8., beat them all together, and boil them, let one or two drops of this water be dropped on the grieved place, not touching any place else, but if there be an ulcer, it must be cured as I have shewed before. A certain man, studious of physic, of late affirmed to me that one dung tempered with the leaves or powder of savine, would waffe the warts of the wombe, if it were applied thereto warne; which whether it be true or not, let experience, the midwife of things, be judge: verily cantharides put into ungents, will doe it, and (as it is likely) more effectually, for they will consumne the callousnestle which growth between the toes or fingers. I have proved by experience that the warts that grow on the hands, may be cured by applying of purfain beaten or flamp in its own juice. The leaves and flowers of marigolds doe certainly performe the selfe fame thing.

Chap. LXIII.

Of chaprs, and those wrinkled and hard excrescences which the greeks call Condylomata.

Chaps or fuffires, are cleft and very long little ulcers, with paine very What chaps sharp and burning, by reason of the bitting of an acride, salt and dryning humour, making the great a contraction, and often times narrow within the fundament and the necke of the wombe, that fearfully the bite of ones finger may be put into the orifice thereof, like unto pieces of leather or parchement, which are wrinkled and parched by holding of them to the fire. They rise sometimes in the mouth, so that the patient can neither speake, eat, nor open his mouth for, that the Chirurgian is constrained to cut it. In the cure thereof, all halpe things are to be avoided, and those which mollifie are to be used, and the grieved part or place is to be moistened with fomentations, liniments, cataplains, enplasters, and if the malady bee in the wombe, a dilater of the matrix or pellary must be putthereinto every often, so to widen that which is over hard, & too much drawn together or narrow, and then the cleft little ulcers must be cicatrized. Condylomata are certaine wrinkled and hard buncbes, and as it were excrescences of flesh rising especially in the wrinkled edges of the fundament and neck of the wombe. Cooling and relaxing medicines ought to be used against this diseafe, such as are oyle of egges, and oyle of linseed, take of each of them two ounces, beat them together a long time in a leadeen mortar, and therewith anoint the grieved part, but if there be an inflammation, put thereto a little camphire.

Chap. LXXIV.

Of the itching of the wombe.

If women, especially such as are old, there often times commeth an itching in the neck of the wombe, which doth to trouble them with pain and a desire to scratch, that it taketh away their sleep. Nor long since a woman asked my counsell, that was so troubled with this kind of malady, that she was constrained to extinguish or stay the itching burning of her
her secret parts by sprinkling cinders of fire, and rubbing them hard on the place, I
counsell'd her to take egypt. dissolved in sea-water or lye, & inject it into her secret
parts with a syringe, and to wet flues of flaxe in the same medicine, and put them
up into the wombe, and so she was cured. Many times this itch commeth in the
fundament or recticles of aged men, by reason of the gathering together or confuflx of
falt flegme, which when it falleth into the eyes, it caufeth the patient to have much
adose to refrain from itching: when this matter hath difperfed it felleth into the whole
habite of the body, it caufeth a burning or itching, icabbe, which must be curre by a
cooling and a mollfening diet, by phlebotomy and purging of the falt humour,
by bathes and homes applied, with fcarification and anointing of the whole body
with the unioon following: R. axang. porcin. recens. lb i f, fp. nig. uel gallici, fols
nitr. affat. turar. flaphage. an. i f, sulph. vitr. s i. argent. vitr. s ii. act. fof. quart. i.
icorporate them all together, and make thereof a liniment according to art, and ufe
it as it is faid before: anguenum equinum cum mercurio is thought to have great force,
not without defect, to affuage the itch, and dry the icabbe. Some ufe this that follow-
eth, R. alum. fum. nitr. fulph. vitr. f. i. let them all be difsolved in
vextar of rofes, adding thereto butyf. fccent, make thereof a liniment for the
forenamed ufe.

The caufe.
The cure.

Any women that have had great travell and ftraints in childe-birth, have
the great inteftine (called of the Lattines craffum inteftinum) or gut, re-
Iaxed and flipped down; which kind of a fect happeneth much to chil-
dren, by reafon of a phlegmatic humour moiftcning the sphindier
mufe of the fundament, and the two others called levatores. For the
cure thereof, firft: of all the gut called retkum inteftinum or the ftraight gut, Is to be fo-
mented with a decoiflion of heattng and refolving herbcs, as of fage, rofemary, la-
vander, thyme, and fuch like; and then of aftarient things, as of rofes, myrtils, the
rinds of pomegranats, cyprife nuts, galles, with a little aloctc, then it mufl be fprin*
kled with the pouder of things that are aftarient without biting, and laft
tobe restored and gently thruft into its place. Thatis fuppofed to be an effciffuall
and finojular remedy for this purpofe, which is made of twelve red fnailes put into a
pot with 3 f. of aloctc, and as much of falt, and shaken up and down a long time,for
3 f. length when they are dead there will remaine an humour, which mufl bee put
upon cotton, and applied to the gut that is fallen downe. By the fame caufe (that is
to fay of painfull childe-birth in fome women) there arifeth a great inflamng in the
navell; for when the peritoneum is relaxed or broken, fometimes the Kall, and
fometimes the guts flippe out : many times fallacies come ther: the caufe, as I
now fhewed, is over great ftraining or ftretching of the belly, by a great burthen car-
ried in the wombe, and great travaile in childe-birth: if the fallen downe guts make
that tumour, paine joyned together with that tumour doth vex the patient, and if it
be prefled you may hear the noife of the guts going backe againe: if it be the Kall,
then the tumour is foft, and almoft without pain, neither can you hear any noife by
compreffion: if it be winde, the tumour is loofe and foft, yet it is fuch as will yeeld
to the preffing of the finger with fome force, and will foon returne againe: if the
mumour be great, it cannot be cured unleffe the peritoneum bee cut, as it is faid in the
cure of ruptures. In the church-porches of Pariz I have fene begger-women, who
by the falling downe of the guts, have had fuch tumours as big as a bowle, who not-
withftanding could goe, and doe all other things as if they had beene found and in
perfect health. I think it was becaufe the faces or excrements, by reafon of the great-
néffe of the tumour, and the biguette or wideneffe of the inteftines, had a free paflage
in and out.
Concerning the Generation of Man.

Chap. LXVI.

Of the relaxation of the navell in children.

Fen times in children newly borne, the navell swelleth as bigge as an egg, because it hath not bin well cut or bound, or because the whayth humouris flowed thither, or because that part hath extended it selfe too much by crying, by reason of the paines of the fretting of the childes guts, many times the child bringeth that tumour joined with an abscesse with him from his mother wombe: but let not the Chirurgian aflay to open that abscesse, for if it be opened, the guts come out through the incision, as I to be opened, have feene in many, and especially in a child of my Lord Martignes: for when Peter of the Rocke, the Chirurgian, opened an abscesse that was in it, the bowels ranne out at the incision, and the infant died; and it wanted but little that the Gentlemen of my Lords retinue that were there, had strangled the Chirurgian. Therefore when John Grompinius the Carver defired me, and required mee of late that I would doe the like in his tonne, I refused to doe it, becaufc it was in danger of its life by it already, and in three daies after the abscesse broke, and the bowels gushed out, and the child died.

Chap. LXVII.

Of the same that children have in breeding of teeth.

Children are greatly vexed with their teeth, which cause great paine when they begin to break, as it were, out of their shell or sheath, and begin to come forth, the gummes being broken, which for the most part happeneth about the seventh month of the childs age. This pain commeth with itching and scratching of the gummes, an inflammation, fluxe of the belly, whereof many times commeth a feaver, falling of the hair, a convulsion, and at length death. The cause of the paine is the solution of the continuity of the gummes by the comming forth of the teeth. The signes of that pain is an unaccustomed burning, or heat breedeth swellings of the gummes and cheeks, and the childes being more wayward and crying than it was wont, and it will put its fingers to its mouth, and it will rubbe them on its gummes asthough it were about to scratch, and it slavereth much. That then cure, Phyfitian may remedy this, hee must cure the nurfe as if she had the feaver, and thee must not suffer the child to sucke so often, but make him coole and moist when hee thirsteth by giving him at certaine times syrups aлександрия, syrups. delimonibus, or the syrups of pomegranats with boille water, yet the childe must not hold thofe things that are actually cold long in his mouth, for such by binding the gums, doe in some fort stay the teeth that are newly comming forth; but things that lenifie and mollifie are rather to bee ufed, that is to say, such things as doe by little and little relaxe the loose fleth of the gummes, and also affwage the paine. Therefore the nurfe shall often times rubbe the childs gummes with her fingers, anointed or besmeared with oyle of sweet almonds, freth butter, hony, fugar, mucilage of the seeds of psillium, or of the seeds of marsh mallowes extracted in the water of pellitory of the wall. Some think that the braine of a hare, or of a fucking pig rosted or fodder, through a secret property are effectuall for the same: and on the outide shall be applied a cataraplane of barly meale, milke, oyle of roses, and the yelkes of egges. Also a fickle of liquorice hauen and bruised and anointed with hony, or any of the forenamed syrups, and often rubbed in the mouth or on the gummes, is likewise profitable: to what power is also any toy for the childe to play withall, wherein a wolves tooth is set, for this by scratching doth affwage the painfull itching, and rarifie the gummes, and in some weareth them that the teeth appeare the sooner. But many times it happeneth that pain of them.
all these and such like medicines profit nothing at all, by reason of the contumacy of
the gums, by hardness or the weakness of the child's nature: therefore in such a
cause, before the forenamed mortal accidents come, I would persuade the Chirur-
gian to open the gums in such places as the teeth bunch out with a little swelling,
with a knife or lancet, to breaking and opening a way for them, notwithstanding
that a little flux of blood will follow by the tension of the gums: of which kind
of remedy I have with prosperous and happy success made trial in some of mine
owne children, in the presence of Fovæus, Altinus, and Cortinus, Doctors of Phy-
sick, and Guillemeau the Kings Chirurgian, which is much better and more safe than
to doe as some nurses doe, who taught only by the instinct of nature, with their
nailes and scratching, break and tear, or rent the childrens gummes. The Duke of
Nevres had a sonne of eight moneths old, which died of late, and when wee, with
the Physicians that were present, diligently sought for the cause of his death, we
could impute it unto nothing else, than to the contumacious hardness of the gums,
which was greater than was convenient for a child of that age; for therefore the
teeth could not break forth, nor make a passage for themselves to come forth: of
which our judgement this was the trial, that when we cut his gums with a knife,
we found all his teeth appearing as it were in an array, ready to come forth, which
if it had bin done when he lived, doubtlesse he might have beene preserved.
OF MONSTERS AND PRODIGIES

THE TWENTY FIFTH BOOK

THE PREFACE.

We call Monsters, what things soever are brought forth contrary to the common decree and order of nature. Some terms that infant monstrous, which is born with one arm alone, or with two heads. But we define Prodigies, those things which happen contrary to the whole course of nature, that is, altogether differing and dissenting from nature: as, if a woman should be delivered of a Snake, or a Dogge. Of the first sort are thought all those, in which any of those things, which ought, and are accustomed to be, according to nature, is wanting, or doth abound, is changed, worn, covered or defended, hurt, or not put in his right place: for sometimes some are born with more fingers than they should, others some but with one finger; some with those parts divided which should be joined, others with those parts joined which should be divided: some are born with the privities of both sexes, male and female. And Aristotle saw a Goate with a borne upon her knee. No living creature was ever borne which wanted the Heart, but some have bene found wanting the Spleene, others with two Spleenes, and some wanting one of the Reines. And none have bin known to have wanted the whole Liver, although some have bin found that had it not perfect and whole: and there have beene those which wanted the Gall, when by nature they should have had it: and besides, it hath beene seene that the Liver, contrary to his natural site, hath lien on the left side, and the Spleene on the right. Some women also have had their privities closed, and not perforated, the membraneous obstacle, which they call the Hymen, binding. And men are sometimes borne with their fundament, eares, nozes, and the rest of the passages shut, and are accounted monstrous, nature erring from its intended scope. But to conclude, those Monsters are thought to portend some ill, which are much differing from their nature.
Of the cause of Monsters, and first of those Monsters which appear
for the glory of God, and the punishment of men's wickedness.

Here are reckoned up many causes of monsters; the first whereof is the
glory of God, that his immense power may be manifested to those which
are ignorant of it, by the sending of those things which happen contrary
to nature; for this our Saviour Christ answered the Disciples, asking whether
he or his parents had offended, who, being born blind, received his sight from
him; that neither he nor his parents had committed any fault so great, but this to have
happened only, that the glory and majesty of God should be divulged by that miracle, and such great works.

Another cause is, that God may either punish men's wickedness, or shew signs
of punishment at hand, because parents sometimes lie and join themselves together without law and measure, or luxuriously and beastly, or at such times as they
ought to forbear, by the command of God and the Church, such monstrous, horrid and unnaturall births do happen.

At Verona Anno Dom. 1254. a mare foaled a colt, with the perfect face of a man,
but all the rest of the body like an horse: a little after that, the warre betweene the Florentines and Pisans began, by which all Italy was in a combustion.

The figure of a Colt with a mans face.

About the time that Pope Julius the second raised up all Italy, and the greatest
part of Christendome, against Lewis the twelfth the King of France, in the yeere of
our Lord 1512. in which yeere, upon EASTER day, neere Ravenna was fought that
dreadfull battle, in which the Popes forces were overthrowne) a monster was borne in Ravenna, having a horn upon the crowne of his head, and besides, two wings, and one foot alone, most like to the feet of birds of prey, and in the knee thereof an eye, the privities of male and female, the rest of the body like a man, as you may see
by the following figure.
The third cause is, an abundance of seed & overflowing matter. The fourth, the same in too little quantity, and deficient. The fifth, the force and efficacy of imagination. The sixth, the straightness of the womb. The seventh, the disorderly site of the parts with child. The eighth, a fall, traine or strake, especially upon the belly of a woman with child. The ninth, hereditary diseases, or effects by any other accident. The tenth, the confusion and mingling together of the feed. The eleventh, the craft and wickedness of the devil. There are some others which are accounted for monsters, because they have their original or ef- fects full of admiration, or doe assume a certaine prodigious forme by the craft of some begger companions, therefore we will speak briefly of them in their place in this our treatise of monsters.

**CHAP. II.**

Of monsters caused by too great abundance of seed.

Having wee have already handled the two former and truly small causes of monsters, we must now come to those which are the material, corporeal, and efficacious causes, taking our beginning from that we call the too great abundance of the matter of seed. It is the opinion of those Philosophers which have written of monsters, that if at any time a creature bearing one at once, as man, shall cast forth more seed in copulation than is necessary to the generation of one body, it cannot be that only one should be begot of all that, therefore from thence either two or more must arise: whereby it commeth to passe, that these are rather judged wonders, because they happen seldom, and contrary to common custom. Superfluous parts happen by the same cause, that twinnes, and many at one birth, contrary to nature's course, doe chance, that is, by a larger effusion of seed than is required for the framing of that part, that so it exceeds either in number or else in greatnesse. So Augustine tells that in his time in the East an infant was borne, having all the parts from the belly upwards double, but from thence downwards single and simple; for it had two heads, four eyes, two breasts, four hands, in all the rest like to another child, and it lived a little while. Callius Rhodiginus faith he saw two monsters in Italy, the one male, the other female, handomely & neatly made through all their bodies, except their heads, which were double; the male died within a few dates after it was borne; but the female (whose shape is here delineated) lived 20 five yeares, which is contrary to the common custom of monsters; for they for the most part are very short lived, because they both live and are born, as it were, against nature's content; to which may be added, they doe not love themselves, by reason they are made a shorne to others, and by that means lead a hated life.
Of Monsters and Prodigies.

But it is most remarkable which Lycoctonus telleth of this woman-monster, for excepting her two heads, she was framed in the rest of her body to an exact perfection: her two heads had the like desire to eat and drink, to sleep, to speak, and to do every thing; the begged from door to door, every one giving to her freely. Yet at length she was banished, lest that by the frequent looking upon her, the imaginations of women with children, strongly moved, should make the like impression in the infants they bare in their wombs.

In the year of our Lord 1475, at Verona in Italy, two Giules were borne with their backs flicking together from the lower part of the shoulders unto the very buttocks. The novelty and strangeness of the thing moved their parents, being but poor, to carry them through all the chiefest towns in Italy to get money of all such as came to see them.

In the year 1530, there was a man to be seen at Paris, out of whose belly another, perfect in all his members except his head, hanged forth as if he had been grafted there. The man was forty yeares old, and hee carried the other implanted, or growing out of him, in his armes, with such admiration to the beholders, that many ranne very earnestly to see him.
At [Ligers, a small village some ten miles from Turin in Savoy, in the yeere 1578. upon the seventeenth day of January, about eight a clocke at night, an honest matron brought forth a childe having five hornes, like to Rams horns, set opposite to one another upon his head: he had also a long piece of flesh, like in some sort to a French-hood which women used to wear, hanging downe from his forehead by the nape of his necke almost the length of his backe: two other pieces of flesh, like the collar of a shirt, were wrapped about his necke: the fingers ends of both his hands somewhat resembled a Hawkes talons, and his knees seemed to be in his hames: the right leg and the right foot were of a very red colour: the rest of the body was of a tawny colour: it is said he gave so terrible a ferritch when he was brought forth, that the Midwives, and the rest of the women that were at her labour, were so frighted that they presently left the house and ran away. When the Duke of Savoy heard of this monster, he commanded it should be brought to him, which performed, one would hardly think what various cenfures the Courtiers gave of it.
The monster you see here delineated, was found in the middle and innermost part of an egg, with the face of a man, but hauing a horrid representation of snakes; the chinn had three other snakes stretched forth like a beard. It was first seen at Autun, at the house of one Bencheron a Lawyer, a maide breaking many eggs to butter: the white of this egg given a Cat, presently killed her. Lastly, this monster coming to the hands of the Baron Senecy, was brought to King Charles the ninth being then at Metz.

The effigies of a monstrous child, having two heads, two arms & four legs.

In the year 1546, a woman at Paris in her first moneth of her account, brought forth a child having two heads, two arms and four legs: I defcibing the body of it, found but one heart, by which one may know it was but one infant. For you may know this from Aristotle, whether the monstrous birth bee one or more joined together, by the principall part: for if the body have but one heart, it is but one, if two, it is double by the joining togetherness in the conception.
In the yeere 1569, a certaine woman of Wormes was delivered of twinnes joyned together with one head, and mutually embracing each other. Remus Cirius the famous Chirurgian of those parts, lent mee their section.

Munster writes that in the village Briant, not farre from Wormes, in the yeere 1495, he saw two Girles perfect and entire in every part of their bodies, but they had their foreheads so joined together that they could not be parted or severed by any art: they lived together ten yeeres: then the one dying, it was needfull to separate the living from the dead; but she did not long out-live her sister, by reason of the malignity of the wound made in parting them alunder.

In the yeere 1570, the twentieth of July, at Paris, in the street Gravioliers, at the signe of the Bell, these two infants were borne, differing in sexe, with that shape of body that you see expressed in the figure. They were baptized in the Church of St. Nicholas of the fields, and named Ludovicus and Ludovica; their father was a Mason, his name was Peter German, his surname Petit dieu (i) little-God, his mothers name was Mathes Petronilda.
The shape of the infants lately borne at Paris.

In the year 1572, in Pont de Set, near Angers, a little town, were borne upon the tenth day of July, two girls, perfect in their limbs, but that they had but four fingers apiece on their left hands: they clave together in their fore parts, from their chin to the navell, which was but one, as their heart was also but one; their liver was divided into four lobes: they lived half an hour, and were baptized.

Caligus Rhodiginus tells that in a town of his country called Sarzana, Italy, being troubled with civil wars, there was born a monster of unusual bigness; for he had two heads, having all his limbs answerable in greatness & tallness to a child of four months old: between his two heads, which were both alike, at the setting on of the shoulder, it had a third hand put forth, which did not exceed the ears in length, for it was not all seen; it was born the 5th of the Ides of March 1514.
In the yeere 1572. on Easter Monday at Metz in Loraine, in the Inn whose signe is the Holy Ghost, a Sow pigged a piggie, which had eight legges, fourr eares, and the head of a dogge; the hinder part from the belly downward was parted in two as in twinnnes, but the foreparts grew into one; it had two tongues in the mouth, with foure teeth in the upper jaw, and as many in the lower. The fexe was not to be distingued, whether it were a Bore or Sow pigge, for there was one slit under the tail, and the hinder parts were all rent and open. The shape of this monster, as it is here let downe, was lent me by Borge�us the famous Physitian of Metz.

The shape of a monstrous Pigge.

CHAP. III.

Of women bringing many children at one birth.

Omen is a creature bringing usually but one at a birth: but there have been some who have brought forth two, some three, some foure, five, sixe, or more at one birth. Empedocles thought that the abundance of feed was the cause of such numerous births; the Stoikes affirm the divers cells or partitions of the wombe to be the cause: for the feed being
The figure of one with four legs and as many arms.

Jovianus Pontanus tells in the year 1529, the ninth day of January, there was a man child borne in Germany, having four arms and as many legs.

The figure of a man out of whose belly another lead shewed it selfe.

In the year that Francis the first King of France entered into league with the Swifhes, there was borne a monster in Germany, out of the midst of whose belly there stood a great head, it came to man's age, and this lower, and as it were inverted head, was nourished as much as the true and upper head.

In the year 1572, the last day of February, in the parish of Vivian, in the way as you goe from Carnuta to Paris, in a small village called Bordes, one called Cypriana Giranda, the wife of James Merchant, a husbandman, brought forth this monster whose shape you see here delineated, which lived untill the Sunday following, being but of one onely fexe, which was the female.
variously parted into these partitions, and the conception divided, there are more children brought forth, no otherwise than in rivers, the water beating against the rocks, is turned into divers circles or rounds. But Aristotle faith there is no reason to think it, for in women that parting of the womb into cells, as in dogs and fowes, takest no place; for women's wombes have but one cavity, parted into two recelles, the right & left, nothing comming between, except by chance differing by a certain line and often twins lye in the same side of the womb. Aristotle's opinion is, that a woman cannot bring forth more than five children at one birth. The maid of Augustus Caesar brought forth five at a birth, & a short while after, she & her children died. In the year 1554, at Bearn in Switzerland, the wife of Dr. John Gelinguer brought forth five children at one birth, three boies and two girls. Alchmizes, affirmes a woman to have bin the mother of seven children at one birth, & another, who by some external injury did abort, brought forth fifteen perfectly shaped in all their parts. Pliny reports it was extant in the writings of Physitians, that twelve children were born at one birth, and that there was another in Peloponnese where foure severall times was delivered of five children at one birth, and that the greater part of those children lived. It is reported by Dalechamps that Bonaventura the flave of one Savill, a Gentleman of Sena, at one time brought forth seven children, of which four were baptized. In our time, between Sarte and Maine, in the parish of Seaux, not far from Chambelley, there is a family and noble house called Maldemeure; the wife of the Lord of Maldemeure, the first yeere she was married brought forth twins, the second yeere she had three children, the third yeere foure, the fourth yeere five, the fift yeere six, and of that birth she died: of those fixe one is yet alive, and is Lord of Maldemeure. In the valley of Beaufort, in the county of Aujo, a young woman the daughter of Mace Channiere, when at one perfect birth she brought forth one child, the tenth day following, she fell in laboure of another, but could not be delivered until it was pulled from her by force, and was the death of the mother. Martin Crumerus the author of the Polish Historie, writeth that one Margaret, a woman sprung from a noble and ancient family neere Cracovia, and wife to Count Vitzoffs, brought forth at one birth thirty five live children, upon the twentith day of January, in the yeere 1296. Franciscus Ficus Mirandula writeth that one Dorothy an Italian had twenty children at two births, at the first nine, and at the second eleven, and that she was so bigge, that she was forced to bare up her belly, which lay upon her knees, with abroad and large scarreted about her necke, as you may see by the following figure.
And they are to be reprehended here againe, who affirm the cause of numerous births to consist in the variety of the cells of the wombe, for they fein a woman's wombe to have seven cells or partitions, three on the right side for males, three on the left side for females, and one in the midst for Hermaphrodites or Scrots: and this untrue hath gon fo far, that there have beene some that affirmed every of these seven cells to have bin divided into ten partitions, into which the feed dispers'd, both bring forth a divers and numerous encrease according to the variety of the cells furnished with the matter of feed, which though it may seeme to have beene the opinion of Hippocrates, in his book De natura Pueris, notwithstanding it is repugnant to reason, and to those things which are manifestly apparent to the eyes and senses.

The opinion of Aristotle is more probable, who faith twinnes and more at one birth, are begot and brought forth by the same cause that the first finger groweth on the hand, that is, by the abundant plenty of the feed, which is greater and more copious than can bee all taken up in the natural framing of one body: for if it all be forced into one, it maketh one with the parts unceas'd more than is fit, either in greatnesse or number; but if it bee, as it were, cloven into divers parts, it causeth more than one at one birth.

Chap. IV.

Of Hermaphrodites or Scrots.
something like itself) doth labour both the matters almost with equal force, and
is the cause that one body is of both sexes.

Yet some make four differences of Hermaphrodites; the first of which is the
male Hermaphrodite, who is a perfect and absolute male, and hath only a slit in the
Perineum not perforated, and from which neither urine nor seed doth flow. The
second is the female, which besides her natural privy, hath a fleshy and skinny
multitude of a man's yard, but unapt for erection and ejaculation of seed, and wanteth
the cop and stones; the third difference is of those, which although they bear the
express figures of members belonging to both sexes; commonly let the one against the
other, yet are found unapt for generation, the one of them only leaving for making
of water: the fourth difference is of those who are able in both sexes, and throughly
perform the part both of man and woman, because they have the genitals of
both sexes compleat and perfect, and also the right breast like a man, and the left like
a woman: the lawes command those to choose the sex which they will use, and in
which they will remain and live, judging them to death if they be found to have
departed from the sex they made choice of; for some are thought to have abus'd both,
and promiscuously to have had their pleasure with men and women. There
are signs by which the Physicians may determine whether the Hermaphrodites are
able in the male or female sex, or whether they are impotent in both: these signs
are most apparent in the privities and face, for if the matrix be exact in all its dimen-
sions, and if perforated that it may admit a man's yard, if the courses flow that way,
if the hair of the head be long, flender, and soft, and to conclude, if to this tender
habite of the body a timid and weak condition of the mind be added, the female
sex is predominant, and they are plainly to be judged women. But if they have the
Perineum and fundament full of hairs (the which in women are commonly
without any) if they have a yard of a convenient largeness, if it stand well and
steadily, and yield seed, the male sex hath the preheminence, and they are to be judged men.
But if the conformation of both the genitals be alike in figure, quantity, and effica-
cy, it is thought to be equally able in both sexes: although by the opinion of Aris-
otle, those who have double genitals, the one of the male, the other of the female, the
one of them is always perfect, the other imperfect.

The figure of Hermaphrodite twins cleaving together with their backs.

Anno Dom. 1486. In the Palatinat,
at the village Robach, near Heidelberg,
there were twins, both Hermaphrod-
dites, borne with their backs sticking
together.
The effigies of an Hermaphrodite, having four hands and feet.

The same day the Venetians and Genoese entered into league, there was a monster borne in Italy having four arms and feet, and but one head; it lived a little after it was baptized. James Ruff a Helvetian Chirurgeon faith he saw the like, but which besides had the privi¬
ties of both sexes, whose figure I have therefore here set forth.

CHAP. V.

Of the changing of Sex.

Maine Luftianus reports that in the village Esquina, there was a maid named Maria Pateca, who at the appointed age for her course to flow, had in stead of them a man's yard, lying before that time hid and covered, so that of a woman she became a man, and therefore laying aside her woman's habiliments, was clothed in man's, and changing her name, was called Emanuel, who when he had got much wealth by many and great negociations and commerce in India, returned into his country, and married a wife: but Luftianus faith he did not certainly know whether he had any children, but that he was certaine he remained alwaies bearded.

Anthony Logenecus, the Kings keeper or receiver of his rents of St. Quintin at Vermandois, lately affirmed to me that he saw a man at Reimes, at the lane having the sign of the swan, in the year 1560, who was taken for a woman untill the fourteenth yeere of his age; for then it happened as he played somewhat wantonly with a maid which lay in the same bed with him, his members (hitherto lying hid) started forth and unfolded themselves: which when his parents knew (by help of the Ecclesiasticke power) they changed his name from Joan to John, and put him in man's apparell.

Some yeeres agone, being in the traine of King Charles the ninth, in the French Glass-house, I was shewed a man called Germane Garnierus, but by some Germane Maria (because in former times when he was a woman hee was called Mary) he was of an indifferent stature, and well set body, with a thick and red beard; he was taken for a girl untill the fifteenth yeere of his age, because there was no signe of being a man scene in his body; and for that amongst women, he in like attire did those things which pertain to women: in the fifteenth yeere of his age, whilst he some what earnestly pursued hoggges given into his charge to bee kept, who running into the corne, he leaped violently over a ditch, whereby it came to passe that the stays and foldings being broken, his hidden members sodainly broke forth, but not without paine; going home, he weeping complained to his mother that his guts came forth.
forth; with which his mother amazed, calling Physicians and Surgeons to counsel, heard he was turned into a man; therefore the whole businesse being brought to the Cardinal the Bishop of Lorraine, an assembly being called, he received the name and habitude of a man.

Pliny reports that the sonne of Cefius of a girl became a boy, living with his parents, but by the command of the Soothsayers he was carried into a defart file, because they thought such monsters did alwaies beseem or portend some monstrous thing. Certainly women have so many and like parts lying in their wombe, as men have hanging forth, onely a strong and lively heat seemes to bee wanting, which may drive forth that which lyeth hid within: therefore in progresse of time, the heat being encreased and flourishing, and the humiditie (which is predominant in childhood) overcome, it is not impossible that the virile members, which hitherto sluggish by defect of heat, lay hid, may be put forth, especially if to that strength of the growing heat some vehement concusion or jactation of the body be joined. Therefore I thinke it manifest by these experiments and reasons, that it is not fabulous that some women have beene changed into men: but you shall finde in no history men that have degenerated into women; for nature alwaies intends and goes from the imperfect to the more perfect, but not basely from the more perfect to the imperfect.

**Chap. VI.**

**Of monstera caused by defect of seed.**

If, on the contrary, the seed be anything deficient in quantity, for the conformation of the infant or infants, some one or more members will be wanting, or more short and decrepitate. Hereupon it happens that nature intending twinnes, a childe is borne with two heads, and but one arm, or altogether lame in the rest of his limbes.

*The effigies of a monstrous childe, by reason of the defect of the matter of seed.*

**Anna Dom. 1573.** I saw at St. Andrews Church in Paris, a boy nine yeares old, borne in the village Parpavelle, fixe miles from Guise, his fathers name was Peter Renard, and his mother Marquete: hee had but two fingers on his right hand, his arm was well proportioned from the top of his shoulder almost to his wretf, but from thence to his two fingers ends it was very deformed, he wanted his legs and thighs, although from the right buttocke a certaine imperfect figure, having only foure toes, seemed to put it fettle forth; from the midle of the left buttocke two toes sprung out, the one of which was not much unlike a mans yard, as you may see by the figure.
A few yees ago there was a man of forty yeeres old to be seene at Paris, who although he wanted his armes, notwithstanding did indifferently performe all those things which are usuallie done with the hands, for with the top of his shoulder, head and necke, hee would strike an Axe or Hatchet with as sure and strong a blow into a pooff, as any other man could doe with his hand; and hee would laffe a coach-mans whip, that he would make it give a great crack, by the strong refraction of the aire: but hee ate, dranke, plaid at cardes, and such like, with his feete. But at laft he was taken for a thiefe and murderer, was hanged and fastened to a wheele.

Also not long agoe there was a woman at Paris without armes, which nevertheless did cut, sew, and doe many other things, as if she had had her hands. We read in Hippocrates, that Attagene his wife brought forth a childe all of flesh without any bone, and notwithstanding it had all the parts well formed.
The effigies of a man without arms, doing all that is usually done with hands.

The effigies of a monster with two heads, two legs, and but one arm.
CHAPTER VII.

Of monsters which take their cause and shape by imagination.

The ancients having diligently sought into all the secrets of nature, have remarked and observed other causes of the generation of monsters: for, understanding the force of imagination to be so powerful in us, as for the most part, it may alter the body of them that imagine, they soon persuaded themselves that the faculty which forms the infant may be led and governed by the firm and strong cogitation of the Parents begotting them (often deluded by nocturnall and deceitfull apparitions) or by the mother conceiving them, and so that which is strongly conceived in the mind, imprints the force into the infant conceived in the womb: which thing many thinke to be confirmed by Moses, because he tells that Jacob encreased and bettered the part of the theape granted to him by Laban, his wives father, by putting roddes, having the barke in part pulled off, finely stroaked with white and greene, in the places where they used to drinke, especially at the time they engendered, that the representation apprehended in the conception, should be presently impressed in the young, for the force of imagination hath so much power over the infant, that it sets upon it the notes or characters of the thing conceived.

We have read in Heliodorus that Persia Queen of Ethiopia, by her husband Hiduas, being also an Ethiop, had a daughter of a white complexion, because in the embraces of her husband, by which she proved with childe, the earnestly fixed her eye and mind upon the picture of the faire Andromeda standing opposite to her. Damaicene reports that he saw a maid hairy like a Beare, which had that deformity by no other cause or occasion than that her mother earnestly beheld, in the very instant of receiving and conceiving the seed, the image of St. John covered with a camells skinne, hanging upon the poats of the bed.

They say Hippocrates, by this explication of the cause, freed a certain noble woman from suspicion of adultery, who being white her selfe, and her husband also white, brought forth a childe as blacke as an Ethiop, because in copulation she strongly and continually had in her minde the picture of the Ethiop.

The effigies of a maid all hairy, and an infant that was blacke by the imagination of their Parents.
There are some who think the infant once formed in the womb, which is done at the utmost within two & forty days after the conception, is in no danger of the mother's imagination, neither of the seed of the father which is cast into the womb; because when it hath got a perfect figure, it cannot be altered with any external form of things; which whether it be true, or no, is not here to be enquired of: truly I think it best to keep the woman, all the time she goeth with child, from the sight of such shapes and figures.

The effigies of a horrid Monster, having feet, hands, and other parts like a Caife.

In Steequet a village of Saxony, they say, a monster was borne, with four feet, eyes, mouth, and nose like a calfe, with a round and redde excrecence of flesh on the forehead, and also a piece of flesh like a hood hung from his necke upon his backe, and it was deformed with its thighes torne and cut.

The figure of an infant with a face like a Frog.

Anno Dom. 1517. in the pariss of King-wood, in the forest Bo-ver, in the way to Fontain-Bleau, there was a monster born, with the face of a Frog, being seen by John Bellanger, Chirurgian to the Kings Engineers, before the Justices of the town of Harmony, principally John Britton the Kings procurator in that place.

The fathers name was Amadams the Little, his mothers, Magdale-mo Sarbuscata, who troubled with a feaver, by a womans persuasi-on, held a quicke frogge in her hand until it died, she came thus to bed with her husband and conceived; Bellanger, a man of an acute wit, thought this was the cause of the monstruous deformaty of the childe.
Of Monsters caused by the straitness of the womb.

That the straitness or littleness of the womb may be the occasion of monsters.

EE are constrained to confess by the event of things, that monsters are bred and caused by the straitness of the womb; for so apples hanging upon the trees, if before they come to full ripeness, they bee put into strait vessels, their growth is hindered. So some whelpes which women take delight in, are hindered from any further growth by the littlenesse of the place in which they are kept. Who knowes not that the plants growing in the earth, are hindered from a longer progresse and propagation of their roots, by the opposition of a flint, or any other solid body, and therefore in such places are crooked, slender and weak, but on the other part, where they have free nourishment, to bee strait and strong? for seeing that by the opinion of Naturalists, the place is the form of the thing placed; it is necessary that those things that are shut up in straiter spaces, prohibited of free motion, should be lefened, depraved and lamed.

Empedocles and Diphilus acknowledged three causes of monstros births: The too great or small matter of the seed; the corruption of the seed; and depravation of growth by the straitness or figure of the womb: which they thought the chiefest of all; because they thought the cause was such in natural births, as in forming of metals and fusible things, of which statues being made, doe leffe expresse the things they be made for, if the moldes or formes into which the matter is poured, bee rough, cabbrous, too strait, or other wise faulty.

Of monsters caused by the ill placing of the mother, in sitting, lying downe, or any other posture of the body in the time of her being with childe.

EE often too negligently and carelessly corrupt the benefits and corporeal endowments of nature in the straitness and dignity of conformation: it is a thing to be lamented and pitied in all, but especially in women with childe, because that fault doth not only hurt the mother, but deforms and perverts the infant which is contained in her womb: for wee moving any manner of way, muft necessarily move whatsoever is within us. Therefore they which sit idly at home all the time of their being with childe, or crook-legged, those which holding their heads down, doe sow or worke with the needle, or doe any other labour, which presse the belly too hard with cloathes, breeches or fathes, doe produce children wrie-necked, flooping, crooked and disfigured in their feet, hands, and the rest of their joints, as you may see in the following figure.
Chap. X.

Of monsters caused by a stroke, fall, or the like occasion.

There is no doubt but if any injury happen to a woman with child, by reason of a stroke, fall from on high, or the like occasion, the hurt also may extend to the child. Therefore by these occasions the tender bones may be broken, wrenched, strained, or depraved after some other monstrous manner; and more, by the like violence of such things, a vein is often opened or broken, or a flux of blood, or great vomiting is caused by the vehement concussion of the whole body, by which means the child wants nourishment; and therefore will be small and little, and altogether monstrous.

Chap. XI.

Of monsters which have their original by reason of hereditary diseases.

By the injury of hereditary diseases, infants grow monstrous, that is, monstrously deformed: for crooke-backs produce crooke-backs, and often times so crooked, that between the bunch behind and before, the head lies hid, as a Tortoise in her shell: so lame produce lame, flat nosed their like, dwarfes bring forth dwarfes, leane bring forth leane, and fat produce fat.

Chap.
CHAP. XII.

Of monsters by the confusion of seed of divers kindes.

What which followeth is a horrid thing to be spoken; but the chief minde of the Reader will give mee pardon, and conceive that, which not only the Stoikes, but all Philosophers, who are busied about the search of the causes of things, must hold, That there is nothing obscene or filthy to be spoken. Those things that are accounted obscene may bee spoken without blame, but they cannot bee asked or perpetrated without great wickednesse, fery and madness; therefore that ill which is in obscenity consists not in word, but wholly in the act. Therefore in times past there have been some, who nothing fearing the Deity, neither Law, nor themselves, that is, their foule, have so abjected and prostrated themselves, that they have thought themselves nothing different from beasts: wherefore Atheists, Sodomites, Out-lawes, forgetfull of their owne excellency and divinity, have transformed by filthy lust, have not doubted to have filthy and abominable copulation with beasts. This so great, so horrid a crime, for whose expiation all the fires in the world are not sufficient, though they most maliciously crafty, have concealed, and the conscious beasts could not utter, yet the generated mis-shapen issue hath abundantly spoken and declared, by the unspeakable power of God, the revenger and punisher of such impious & horrible actions. For of this various and promiscuous confusion of seeds of a different kinde, monsters have beene generated and borne, who have beene partly men and partly beasts.

The like deformity of issue is produced, it beasts of a different species doe copulate together, nature alwaies affecting to generate something which may bee like it selfe: for wheat growes not but by sowing of wheat, nor an apricocke but by the setting or grafting of an apricocke; for nature is a most diligent preserver of the species of things.

The effigies of a monster halse man and halse dogge.

Anne Dom. 1493. there was generated of a woman and a dogge, an issue, which from the navell upwards perfectly resembled the shape of the mother, but thence downwards the fire, that is, the dogge. This monster was sent to the Pope that then reigned, as Volaterrane writeth also Cardane mentions it: wherefore I have here given you the figure thereof.
Calenus Rhodiginus writes that at Sibaris, a heards-man called Chrathis fell in love with a Goat, and accompanied with her, and of this detestable and brutish copulation an infant was born, which in legges resembled the damme, but the face was like the fathers.

The figure of a monster in face resembling a man, but a Goat in his other members.

Anno Dom. 1110. In a certain towne of Liège (as faith Lycosthenes) a sow farrowed a pig with the head, face, hands, and feet of a man, but in the rest of the body resembling a swine.

The figure of a pigge, with the head, face, hands, and feet of a man.

Anno Dom. 1564. At Bruxels, at the house of one Jost Dilpertz, in the street Warmoesbroeck, a sow farrowed sixe pigs, the first whereof was a monster representing a man in the head, face, fore feet and shoulders, but in the rest of the body another pigge, for it had the gentalls of a sow pigge, and it sucked like the other pigs. But the second day after it was farrowed, it was killed of the people together with the sow, by reason of the monstrousnesse of the thing. Here followeth the figure thereof.
Of Monsters and Prodigies

The effigies of a monster half man and half swine.

Anna Dom. 1571. at Antwerp, the wife of one Michael a Printer, dwelling with one John Molina a Graver or Carver, at the signe of the Golden Foot, in the Comitate, on St. Thomas his day, at ten of the clocke in the morning, brought forth a monster wholly like a dogge, but that it had a shorter necke, and the head of a bird, but without any feathers on it. This monster was not alive, for that the mother was delivered before her time, but she giving a great shriek in the instant of her deliverance, the chimney of the house fell downe, yet hurt nobody, no not so much as any one of four little children that sat by the fireside.

The figure of a monster like a dogge, but with a head like a bird.

Lewis Cellius writeth that he hath read in an approved author, that an Ewe once brought forth a Lion, a beast of an unlike and adverse nature to her.

Anna Dom. 1577. in the towne Blandy, three miles from Melon, there was lambed a Lambe, having three heads, the middlemost of which was bigger than the rest, when one bleated they all bleated. John Behanger the Chirurgeon of Melon shewed that hee saw this monster, and he got it drawn, and sent the figure thereof to mee, with that humane monster that had the head of a Frogge, which we have formerly described.
There are some monsters in whose generation by this there may seem to be some divine cause, for that their beginnings cannot be derived or drawn from the general cause of monsters, that is, nature, or the errors thereof, by reason of some of the aforementioned particular causes: such are these monsters that are wholly against all nature, like that which we formerly mentioned, of a Lion yeased by an Ewe.

Yet Astrologers (left there should seem to be any thing which they are ignorant of) refer the causes of those to certain constellations and aspects of the Planets and Stars, according to Aristotle laying in his Problemes; in confirmation whereof they tell this tale. It happened in the time of Albertus Magnus, that in a certain village, a Cow brought forth a Calfe, which was half a man: the townsmen apprehended the heard, and condemned him as guilty of such a crime, to be presently burnt together with the cow; but by good luck Albertus was there, to whom they gave credit by reason of his much and certain experience in Astrologie, that it was not occasioned by any humane wickedness, but by the efficacy of a certain position of the staries, that this monster was borne.

CHAP. XIII.

Of monsters occasioned by the craft and subtility of the Devil.

In treating of such monsters as are occasioned by the craft of the Devil, we crave pardon of the courteous Reader, if peradventure going further from our purpose, we may seem to speak more freely and largely of the existence, nature, and kindes of Devils. Therefore first it is manifest that there are Conjurers, Charmers, and Witches, which whatsoever they do, performe it by an agreement & compact with the Devil, to whom they have addicted themselves: for none can be admitted into that society of Witches, who hath
hath not forsaken God the Creator, and his Saviour, and hath not transferred the worship due to him above upon the Devil, to whom he hath obliged himselfe. And affirmdly, whooeuer adduces himselfe to these magical vanities and witch-crafts, doth it, either because hee doubts of Gods power, promisies, study and great good will towards us: or else for that he is maddened with an earnest desire of knowing things to come, or else because disdaining poverty, hee affects and defires from a poore estate to become rich on the Sidnaite. It is the constant opinion of all, both ancient and modern, as well Philosophers as Divines, that there are some such men; which when they have once addicted themselves to impious and devillish arts, can by the wondrous craft of the Divell, doe many strange things, and change and corrupt bodies, and the health & life of them, and the condition of all mundane things. Also experience forceth us to confesse the fame, for punishments are ordained by the laws against the professers and practicers of such arts: but there are no laws ordained against those things which neither ever have beene, nor ever came into the knowledge of men: for such things are rightly judged and accounted for impossibilities, which have never beene seene nor heard of.

Before the birth of Chrift there have bee many such people, for you may finde in Exodus and Leviticus lawses made against such persons by Moses, by whom God gave the law to his people. The Lord gave the sentence of death to Ochafou to his Prophet, for that he turned into these kindes of people. We are taught by the scriptures, that there are good and evill spirits, and that the former are termed Angels, but the latter Devils: for the law is also said to be given by the ministracy of Angels: and it is said that our bodies shall rise againe at the found of a trumpet, and the voice of an Arch angel. Chrift said that God would send his Angels to receive the elect into the heavens.

The historie of Job refietheth that the Devill sent fire from heaven, and killed his sheep and carrell, and raised winds that shooke the fourers corners of the house, and overwhelmed his children in the ruines thereof. The history of Achab mentioneth a certaine lying spirit in the mouth of the fals Prophets. Sathan entering into Judas, moved him to betray Chrift. Devils, who in a great number posified the body of a man, were called a Legion, and obtained of Chrift that they might enter into swine, whom they carried headlong into the sea.

In the beginning God created a great number of Angels, that those divine and incorporeal spirits might inhabit heaven, and as messengers, signify Gods pleasure to men, and as ministers of servants, performe his commands, who might be as overseers and protectors of humane affaires. Yet of this great number there were some who were blinded by pride, and thereby also cast downe from the presence, and heavenly habitation of God the creator. Those harmefull and crafty spirits declare mens minds by divers jugling tricks, and are alwayes contriving something to our harme, and would in a short space destroy mankinde, but that God refraignes their fury: for they can onely doe so much as is permitted them: Expelled heaven, some of them inhabit the aire, others, the bowels of the earth, there to remaine untill God shall come to judge the world: and as you see the clouds in the aire sometymes to resemble centaures, other times to resemble serpents, rocks, towers, men, birds, fishes, and other shapes: so these spirits turne themselves into all the shapes and wondrous forms of things: as oft times into wild beasts, into serpents, toads, owles, lapwings, crows, or ravenes, goats, asses, dogs, cats, wolves, bulls, and the like. Moreover, they oft times affume and enter humane bodies, as well dead as alive, whom they torment and punish, yea also they transforme themselves into angels of light.

They feign themselves to bee shut up and forced by magical rings, but that is onely their deceit and craft, they with, fear, love, hate, and oft times as by the appointment and decree of God they punish malefactors: for we read that God sent evil Angells into Egypt, there to destroy. They loue on the night, they murmur & rattle, as if they were bound in chains, they move benches, tables, counters, props, cupboards, children in the cradles, play at tables and chessie, turne over books, tell many, walk up & downe rooms, and are heard to laugh, to open windowes & dores, cast founding vellets, as bralfe and the like, upon the ground, breake stone pots and glaffes,
glaffes, and make other the like noifes. Yet none of all these things appeare to us when we arise in the morning, neither finde we anything out of its place or broken. They are called by divers names, as, Devills, evill Spirits, Incubi, Succubi, Hobgoblins, Fairies, Robin-good fellowes, evill Angels, Satan, Lucifer, the father of lies, Prince of darkenesse, and of the world, Legion, and other names agreeable to their offices and nature.

**CHAP. XIV.**

*Of the subterrene Devills, and such as haunt Mines.*

Evius Lavater writes, that by the certaine report of such as worke in Mines, that in some Mines there are feene spirits, who in the shape and habite of men, worke there, and running up and down seeme to doe much worke, when as notwithstanding they doe nothing indeed. But in the meanie time they hurt none of the by-standers unless they bee provoked thereto by words, or laughter. For then they will throw some heauie or hard thing upon him that hurt them, or injure them some other way.

The same author affirmesthat there is a silver Mine in Rhetia, out of which Peter Brion, the Governor of the place, did in his time get much silver. In this Mine there was a Devill, who chiefly on Fridayes, when as the Miners put the mineral they had digged into tubbes, kept a great quarter, and made himself exceeding busie, and poured the mineral, as he lifted, out of one tubbe into another. It happened one day that he was more busie than he used to be, so that one of the Miners reviled him, and had him bee gone on a vengeance to the punishment appointed for him. The Devill offended with his imprecation and scoffe, so wrested the Miner, taking him by the head, that twining his necke about, he set his face behind him, yet was not the workman killed therewith, but lived; and was known by divers for many yeres after.

**CHAP. XV.**

*By what means the Devills may deceive us.*

Ur mindes involved in the earthy habitation of our bodies, may bee deluded by the Devills divers watices; for they excell in purity and subtilty of essence, and in the much use of things: besides, they challenge a great prprenminence, as the Princes of this world, over all sublunary bodies. Wherefore it is no marvell if they, the teachers and parents of lies, should cast clouds and mistes before our eyes from the beginning, and turne themselves into a thousand shapes of things and bodies, that by these juglings and trickes they may shadow and darken mens mindes.

**CHAP. XVI.**

*Of Succubi and Incubi.*

Owerfull by these forementioned arts and deceipts, they have sundry times accompanied with men in copulation, whereupon such as have had to doe with men, were called Succubi, those which made use of women, Incubi. Verily St. Augustine feemeth not to be altogether against it, but that they, taking upon them the shape of man, may fill the generalls
A history.

John Ruett in his book of the conception and generation of man, writes that in his time, a certain woman of monstrous lust, and wondrous impudence, had to do by night with a Devil, that turned himself into a man, and that her belly swelled up

premptively after the act; and when as the thought she was with child, she fell into so grievous a diseased, that she voided all her entrails by stooles, medicines nothing at all prevailing.

The like history is told of the servant of a certain Butcher, who thinking too attently on venereal matters, a Devil appeared to him in the shape of a woman, with whom (supposing it to be a woman) when as bee had to doe, his genitals were burned after the act, that becoming enflamed, hee died with a great deal of torment.

Neither doth Peter Paludanus, and Martin Arelatensis think it absurd to affirm that Devils may beget children, if they shall ejaculate into the womans womb seed taken from some man, either dead or alive. Yet this opinion is most absurd and full of falshetie, mans seed consisting of a feminall or fanguineous matter, and much spirit: if it runne otherways than into the womb from the testicles, and stay never so little a while, it loseth its strength and efficacy, the heat and spirits vanishing away; for even the too great length of a mans yard, is reckoned amongst the caufes of barrenneffe, by reaſon that the feed is cooled by the length of the way. If any in copulation, after the ejaculation of the feed, preferently draw themselves from the womans embraces, they are thought not to generate, by reafon of the air entering into the yet open womb, which is thought to corrupt the feed. By which it appears how falsh that history in Averrois is, of a certaine woman that said she conceived with child by a mans feed them in a bath, and so drawne into her wombe, (she entering the bath prefently after his departure forth. It is much lefe credible that Divells can copulate with women, for they are of an absolute spirituall nature, but blood and deharing conteffary for the generation of man. What naturall reaſon can allow that the incorporeal Divells can love corporeall women? And how can we think that they can generate, who want the instruments of generation? How can they who neither eat nor drinke be faide to well with feed? Now where the propagation of the species is not necessary to be supplied by the succession of Individuals, Nature hath given no defire of venery, neither hath it imparted the use of generation, but the divels once created were made immortal by Gods appointment; If the faculty of generation should be granted to devills, long since all places had beene full of them. Wherefore if at any time women with child by the familiarity of the devill, seene to traveill, we must think it happens by those arts we mentioned in the former chapter, to wit, they use to stuff up the bodies of living women with old clouts, bones, pieces of iron, thornes, twifted haires, pieces of wood, serpents, and a world of fuch trumpery, wholly diftenting from a womans nature: who afterwards, the time, as it were, of their delivery drawing nigh, through the wombe of her that was falfly judged with child, before the blinded, and, as it were, bound up eyes of the by-standing women, they give vent to their impoſtures. The following history, recorded in the writings of many most credible authors, may give credit hereto.

There was at Conflance a faire damoifell called Margaret, who served a wealthy Citizen; she gave it every where that she was with child by lying with the devill on a certaine night. Wherefore the Magistrates thought it fit she should be kept in priſon, that it might bee apparent both to them and others, what the end of this exploit would bee. The time of deliverance approaching, shee felt pains like those which women endure in traveill; at length, after many throwes, by the midwives helping, in stead of a childe, shee brought forth iron nailes, pieces of wood, of glasse, bones, ftones, haires, towne, and the like things, as much different from each other, as from the nature of her that brought them forth, and which were formerly thrust in by the devill to delude the too credulous minds of men.

The Church acknowledgeth that devills, by the perrmission and appointment of God punishing our wickedneffe, may abufe a certaine shape, fo to ufe copulation
with mankind. But that a humane birth may thence arise, it is not only affirmed to be false, but detested as impious, as which believes that there was never any man begotten without the seed of man, our Saviour Christ excepted. Now what confusion and perturbation of creatures should proceed from the beginning of the world? How many prodigies by casting their seed into the wombs of wild and brute beasts? For by the opinion of Philosophers, as often as faculty and will concur, the effect must necessarily follow: now the Devils never have wanted will to disturb mankind, and the order of this world: for the devil, as they say, is our enemy from the beginning; and as God is the author of order, and beauty, so the devil, by pride, contrary to God, is the center of confusion and wickedness.

Wherefore if power should accrue equal to his evil minde and nature, and his infinite desire of mischief and envy, who can doubt but a great confusion of all things and species, and also great deformity would invade the decent and comely order of this universe, monsters arising on every side? But seeing that devils are incorporeal, what reason can induce us to believe that they can be delighted with venereal actions and what will can there be where there is no delight, nor any decay of the species to be feared? seeing that by God's appointment they are immortal, for they remain for ever in punishment: so what need they succession of individual by generation? Wherefore if they neither will nor can, it is a madness to think that they doe commune with man.

### Chapter XVII.

Of Magicks and supernatural diseases and remedies.

Hat I may refresh the mind of the Reader, invited to these histories of monsters, raised up by the arc of the devil, witches, and conjurers, his servants, I have thought good to add the following histories of certain diseases, and remedies supernatural, and wholly magical, out of Fenelius. These are diseases, which as they are sent amongst men by God being offended, so they cannot else be cured otherwise than from God, from whence they are thought supernaturally to have their essence and cure. Thus the aire oftentimes, yet chiefly in the time of King David, being defiled with the pestilence, killed sixty odd thousand persons.

Thus Zephania was stricken with a grievous disease; Job was defiled with filthy ulcers by Satan at God's command. And as the Devil, the cruel enemy of mankind, commonly used by God to inflict those, so wicked persons by the wondrous subtility of the devil, offer violence, and doe harme to many. Some invoke I know not what spirits, and adjure them with herbs, exorcisms, imprecations, incantations, charms: others hang about their neckes, or otherwise carry certain writings, characters, rings, images, and other such impious stuffe. Some use songs, sounds or numbers: sometimes potions, perfumes, and smells; sometimes gestures and jugling. There be some that make the portraiture of the absent party in waxe, and boast that they can cause or bring a disease into whatsoever part thereof they prick, by the force of their words and flares, into the like part of the party absent; and they have no few other tricks to bring diseases.

We know for certain that magicians, witches, and conjurers, have by charms bound some, that they could not have to do with their wives: and have made others so impotent, as if they had been gents or made eunuchs. Neither do wicked men one way defile diseases into man's body, but also devils themselves. These truly are those distracted with a certain fury, but in this one thing they differ from simple madness, for that they speake things of great difficulty, tell things past and hid, disclosethe
secrets of such as are present, and revile them many ways, and are terrified, tremble or grow angry by the power of divine words.

One not very long ago, being by reason of heat exceeding dry in the night time, rising out of his sleep, and not finding drink, took an apple that he found by chance, and eating it, he thought his jaws were shut and held fast as by one's hands, and that he was almost strangled: and also, now possessed of a Devil entering into him, he seemed in the dark to be devoured of a huge exceeding black dogge, which hee, afterwards restored to his former health, orderly related to me. There were divers, who by his pulse, heat, and the roughness of his tongue, thought him to be in a fever, and by his watching, and the perturbation of his mind, thought him only to rave.

Another young Noble-man, some few yeeres since, was troubled at set times with a shaking of the body, and as it were, a convulsion, wherewith one while he would move onely his left arm, another while the right arm, and also sometimes but one finger onely, somewhiles but one legge, sometimes the other, and at other times the whole trunk of his body, with such force and agility, that lying in his bed, he could scarce be held by foure men; his head lay without any shaking, his tongue and speech was free, his understanding found, and all his senses perfect even in the height of his fit. He was taken at the least ten times a day, well in the spaces between, but wearied with labour: it might have bee,ne judged a true Epilepsie, if the understanding and senses had failed.

The most judicious Phyfitians who were called to him, judged it a convulsion, coven-germane to the falling fickeneffe, proceeding from a malignant and venemous vapour impaSs'd in the spine of the backe, whence a vapour diffperid it selfe over all the nerves, which passe from the spine every way into the limbes, but not into the braine. To remove this, which they judged the caufe, frequent glysters are ordain'd, and strong purges of all sorts, cupping glasses are applied to the beginnings of the nerves, fomentations, unctions, emplastos, first to discouer, then to strengthen and weare away the malignant quality: Thefe things doing little good, he was sweated with bathes, stoves, and a decoction of Guajacum, which did no more good than the former, for that we were all farre from the knowledge of the true caufe of his disease: for in the third moneth, a cærtaine Devil was found to be the author of all this ill, bewraying him selfe by voice, & unaccustomed words and sentences, as well latine as greeke (though the patient were ignorant of the greek tongue): he laid open many secrets of the by-standers, but chiefly of the Phyfitians, deriding them for that hee had abused them to the patients great harme, because they had brought his body so low by needlesse purgations.

When his father came to visite him, he would cry out long before he came at him, or saw him, drive away this visitant, & keep him from coming in here, or else pluck his chaine from about his necke: for on this (as it is the custome of the French order of Knights) there hangs the image of St. Michael. If holy or divine things were read before him, he shoke and trembled more violently. When his fit was over, he remembered all that he had done, and affirmed that hee did it against his will, and that he was sorry for it. The devil, forced by ceremonies and exorcisms, denied that he was dammed for any crime, and said that he was a spirit: being asked who he was, and by what means and power he did these things, he said that hee had many habitations into which hee could betake him selfe, and in the time of his repit, hee could torment others; that hee was cast into this body by a certain percon whom he would not name, and that he entered by his feet up to his necke, and that hee would go forth against the same way, when as his appointed time was come. He spoke of sundry other things, as others which are possedde use to doe.

Now I speake not these things as new or strange, but that it may appeare that devills sometimes entering into the body, doe somewhat torment it by divers and uncouth waies; other whils they doe not enter, but either agitate the good humours of the body, or draw the ill into the principall parts, or with them obstruct the veins or other paffages, or change the structure of the instruments, from which causes innumerable diseases proceed; of these, Devils are the authors, and wretched and forlorn
Of Monsters and Prodigies.

Lucan informs us that the Emperor Nero in his time, found magickal arts most vain and false: but what need we alledge profane writers, when as those things that are recorded in scripture of the pythons, of the woman speaking in her belly, of King Nebuchadnezzar, of the Magicians of Pharaoh, and other such things not a few, prove that there be such, and that be seen Magickers? Pliny tells us of Diveschus, that he taunting of the entrails of a sacrificed child, turned himself into a Wolf. We read in Homer that Circe, in the long wandering of Ulysses, changed his companions into beasts, with an incanted cuppe or potion: and in Virgil, that the growing corn may bee spoiled or carried away by incantations: which things, unless they were approved and witnessed by many mens credits, the wisdome of Magistrates and Lawyers, would not have made to many Laws against Magicians, neither would there have beene a mult of imposed upon their heads by the law of the twelve tables, who had enchanted other mens corn. But as in magickal arts the devil doth not exhibite things themselves, as those which he cannot make, but onely certaine fhewes or appearances of things: so in thefe which are any ways accommodated to the use of Physicke, the cure is neither certaine, not safe, but deceivful, captious, and dangerous.

I have fene the Jaundice, over the whole body, cured in one night, by a written Scroll hanged about the neck: also I have sene Agnes chafe away by words and such ceremonies, but within a short while after they returned againe and became much worse: Now there are some vaine things, and verily the fancies of old women, which because they have long poiffled the minds of men, weakened with too much superstition, we terme them superfluous. There are such as we cannot truly faie of them, wherefore and whence they have the faculties ascribed to them: for they neither arise from the temperament, neither from other manifet qualities, neither from the whole substance, neither from a divine or magical power, from which two last mentioned, all medicines beyond nature, and which are consequently to be used to diseases, whose offence are supernaturall, mult proceed. Such like old wives medicines and superfluous remedies are written figures and characters, rings, where neither the affiance of God or Spirits is imployed. Let me aske you, is it not a superfluous medicine to heal the falling sickeneffe, to carry in writing the names of the three Kings, Gaphar, Melchior, and Baltasar, who came to worship Christ? To help the tooth ache, if one whist Maife is in laying, touch his teeth, saying these words, O non commutus ex eo To say vomiting with certaine ceremonies and words, which they abend pronounce, thinking it sufficent if that they but onely know the patients name.

I saw a certaine fellow that with murmuring a few words, and touching the part, would flanch blood out of what part ever it flowed: there be some who to that purpose say this, De latere ejo exuvix Sanguis & Aqua. How many prayers or charms are carried about to cure agues? Some taking hold of the patients hand, say, Ague facilius habeat, aqua Maria virginis Christi partus. Another wathcheth his hands with the patient before the fire, saying to him.selfe that solemne Palfme, Exaltabo te Deus mens Rex, &c. If one tell an Afe in his care that he is flung by a Scorpion, they say that the danger is immediately over.

As there are many superfluous words, so there are many superfluous writings also. To help fore eyees, a paper wherein the two grecke letters M and A, are written must be tied in a thread, and hanged about the necke. And for the tooth ake this ridiculous lying, Stringes, falsique dextera, dentium dulorem persenante. Also oftimes there is no small superfluous in things that are outwardly applied. Such is that of Apollonius in Pliny, to carifie the gums in the tooth ake with the tooth of one that died a violent death: to make pills of the skull of one hanged, against the bitings of a mad dogge: to cure the falling sickeneffe by eating the flesh of a wilde beast, killed with the same iron with which a man was killed: that he shall be freed from a quareantine ague who shall drinke the wine whereunto the sword that hath cut off a mans head, shall be put: and he, the parings of whose nails shall be tyed in a linnen cloth
Oft\^Monfers and Trods; let the necke of a quicke Eele, and the Eele let goe into the water againe. The paine of the Milt to be allwaged, if a beafts Milt bee laid upon it, and the Phyffitian say that hecures or makes a medicine for the Milt. Any one to bee freed from the cough, who shall spit in the mouth of a Toad, letting her goe away alive. The hal-ter wherein one hath beene hanged put about the temples, to helpe the head ache, This word Abraceabrah, written on a paper, after the manner described by Serenus, and hanged about the necke, to help agues or feavers, especially femitertians. What truth can bee in that which fundry affirme, that a Ilcfc of Lthyru, which is a kinde, of Spurge, if it bee plucked upwards, will caufe vomit, but broken downewards, will move to ftoole. You may alfo finde many other superstitious fictions concerning herbs, such as Galen reports that Andrewas and Pamphilius writ, as incantations, transformations, and herbs dedicated to conjurers and devills.

I had thought never in this place to have mentioned thefe and the like, but that there may bee every where found such wicked perons, who leaving the arts and means, which are appointed by God to preserve the health of mans body, flye to the superftitious & ridiculous remedies of forcerers, or rather of devills, which notwithstanding the devill sometimes makes to perform their wilft for effects, that he may still keep them ensnared & addicted to his service. Neither is it to be approved which many lay, that it is good to be healed by any art or means, for that healing is a good worke. This foaying is unworthy of a Chriftian, and favours rather of him that trusts more in the devill chan in God. Thofe Empericks are not of the society of Sorcerers and Magicians, who heale simple wounds with dry lint, or lint dipt in water: this cure is neither magickal nor miraculous, as many fuppofe, but wholly natural, proceeding from the healing fountains of nature, wounds & fractures, which the Chirurgian may heale by onely taking away the impediments, that is, paine, de-fluxion, inflammation, an abfeefle and gangrene, which retard and hinder the cure of fuch diseases. The following examples will sufficiently make evident the devils malic'ioufe, alwaies wickedly and craftily plotting against our safety and life.

A certaine woman at Florence (as Langius writes) having a maligne ulcer, and being troubled with intolerable paine at the ftomacke, fo that the Phyffitians could give her no cafe: behold on a fudden fliec vomited up long and crooked nailes, and braffe needles, wrapped up with wax and haires, and at length a great gobbit of flefh, fo bigge that a Giants jawes could scarce swallow it. But that which happened in the yeere of our redemption 1539. in a certain town called Fugenfalt, in the Bifhopricke of Eiftet, exceeds all credit, unleffe there were eye-witneifes of approved integrity yet living. In this towne, one Ulrich Noefeller a husbandman, was tormented with grievous paine in the one fide of his belly, hee foddainly got hold of an iron key with his hand under the skinne, which was not hurt, the which the Barber-Chirurgian of the place cut out with his razour, yet for all this the paine ceafed not, but hee grew every day worfe than other: wherefore expecting no other remedy but death, he got a knife and cut his throat. His dead body was o'pened, and in his ftomacke were found a round and longifh piece of wood, fome fteele knives, part fharpe, and part toothed like a faw, and two fharpe pieces of iron, each whereof exceeded the length of a fpanne,there was alfo as it were a ball of haire. All thefe things were put in by the craft and deceit of the devill. Thus farre Langius.
Of Monsters and Prodigies.

993

like, therefore I will handle them in the next place, that the Chirurgeon being admonished of them, may be more cautious and cunning in discerning them when he meets with them.

*Anno Dom. 1525.* when I was at *Anjou,* there stood a crafty beggar begging at the Church door, who lying and hiding his own arm behind his back, let down his gown, and showed but one hand. This he proped up and bound to his breast, and so laid it open to view, as if it had been all enflamed, so to move such as passed by into greater commiseration of him. The cozenage laid hid, every one giving him money, until at length his counterfeit arm not being surely fastened, fell upon the ground, many seeing and observing it: hee being apprehended and laid in prison, by the appointment of the Magistrate, was whipped through the town, with his false arm hanging before him, and so banished.

I had a brother called John Parey, a Chirurgeon, who dwelt at *Fitre* in Britain; he once observed a young woman begging, who shewed her breast, as if it had a cancerous ulcer thereon, looking fearfully by reason of much and fordid filth, wherewith it seemed to defile the cloth that lay under it. But when as he had more diligently beheld the woman's face, and the fresh colour thereof, as also of the places about the ulcer, and the good habite of the whole body agreeable to that colour (for she was for a somewhat fat, and of a very good habite of body) he was easily hereby induced to suspect some rascality and deceit. He acquainted the Magistrate with this his suspicion, and got leave that he might carry her home to his house, so to search her more narrowly. Where opening her breast, he found under her arme-pit, a sponge moistened with a commixture of beasts blood and milk, and carried through an elder pipe to the hidden holes of her counterfeit cancer. Therefore he fomented her breast with warme water, and with the moisture thereof loosed the skins of blacke, green, and yellow frogges, laid upon it, and stucke together with glew, made of bone and incnitt, the white of an egg, and flower: and these being thus fetched off, he found her breast perfectly found.

The beggar being call'd for this into prison, confess'd that she was taught this trick by a beggar that lay with her, who himselfe also, by putting about his legge oxes Milt, and perverting it in sundry places, that so the forementioned liquor might drop out, counterfeited an ulcer of a monstrous bigness and malignity, covering the edges of the Milt on every side with a filthy cloth. This beggar was diligently enquired after, but could not be found; and so hee was whipped and banished.

Within lesse than a yeare after there came into the same city another notable crafte companion, who prefently taking up the church doores, laid open his wares, to wit, a Kercher with some small pieces of mony lying thereon, a wooden Barrell, and *Cliquets,* wherein he would ever now and then make a great noife: his face was spread over with great thick putties, being of a blackish red colour, and made with glew like those that have the Leprofie: this his ghastly look made him to be pitied by all men, which was the cause that every one gave him mony. Then my brother came somewhat nearer him, and asked him how long hee had beene troubled with this so cruel diseafe; he answer'd with an obscure and hoarse voice, that he was born a Leper from his mothers wombe, and that his parents both died of this wicked diseafe, so that their members fell away piece by piece. Now hee had a woolen (wachte about his chapps, wherewith (having his left hand under his cloake) hee strained his chapps, that much black blood rofe into his face, and made him so hoarse that he could scarce speake; yet hee could not contenue himselfe, but that in speaking hee ever now and then flackened the wachte with his hand, the freeler to draw his breath: which when my brother had observed, fupposing some cozenage, he obtained leave of the Magistrate to search and examine the man whether hee were truly leprous, or no. First therefore hee tooke his wachte or rowler that was about his necke, then washed his face with warme water, so that the counterfeit glewed putties were diffolved, and his face, free from all raintitre, shewed it selfe of a good and natural colour and shape. Then he laid bare his whole body, and diligently viewed each part, and found no signe of a leprosye, one or other. Which
when the Magistrate once heard, he made him to bee put in prifon, and to be thrice whipped through the streets of the city, with his barrel hanging before him, and his cliquets behind him, adding thereto the punishment of perpetual banishment. It happened that as he was whipped the third market day, the people cried out to the hang-man in jest, that he should not fear to lash him soundly, for being leprous he could not feel it: the executioner incited by this cry of the people, did to labour him, that the wretch died of his whipping within a short while after, having a just reward for his wickedness. For these impostors, besides that they live like drones, feigning this or that disease, and so being idle, enjoy the fruits of others labours; they also divers times conspiring together, take away the lives and goods of honest and substantial citizens, and other people: for there are some of them, that in an evening, as men that have no habitation, desire lodging for a night, and if it be granted them, they, when as the matter of the house and his family are asleep, open the doors to their comrades, men as wicked as themselves, and kill and carry away all they can.

Certainly we may justly affirm that this crafty begging is the mother and school of all dishonesty: for how many acts of bawdry and poisoning everywhere corrupt the wells and publicke fountains? how many places have been burnt under the shew of begging? where can you get more fit spies, where more fit undertakers and workers of all manner of villany, than out of the crew of these beggars?

Some there are, who befmeare their faces with foot laid in water, so to seem like to have the Jaundice. But you may at the first sight find out the deceit, by the native whiteness of the utter coat of the eye, called Anata, which in such as truly have the Jaundice, useth to bee died and overcast with a yellowish colour; also you may be more certain of this, if you wet a cloth in your or spittle, and so rub the face, for the adventitious yellowness will quickly vanish, and the true native colour shew it selfe.

Some there bee, who not content to have mangled, and filthily exulcerated their limbs with caustick herbs, and other cauteries; or to have made their bodies more swolne, or else lean, with medicated drinks; or to have deformed themselves some other way, but from good and honest Citizens, who have charitably relieved them, they have stolen children, have broken or dislocated their armes and legges, have cut out their tonges, have depreffed the cheft, or whole breaft, that with these, as their owne children, begging up and downe the country, they may get the more reliefe, pitifully complaining that they came by this mischance by thunder, or lightning, or some other strange accident.

Lastly they part the kingdom amongst themselves as into Provinces, & communicate by letters one to another, what newes or new quaint devises there are to conceal or advance their roguery: to which purpose they have invented a new language only known unto themselfes, so to discourse together and not be understood by others. [ We here vulgarly terme it Canting ].
But of an ox, which being filled with blood and milk, and tied at both ends, shee put the one of them into her fundament, and let the filth flow forth at very little holes.

Not very long agoe, a woman equally as shameleff, offered herselfe to the overseers of the poore of Paris, entreating that she might be entred for one of their Penitentiaries, for that her womb was fallen downe by a dangerous and difficult birth, wherefore she was unable to worke for her living. Then they commanded that she should be tryed and examined, according to the custome, by the Chirurgians which are therefore appointed. Who seeing how the whole bunineffe was carried, made report she was a counterfeit, for she had put an oxes bladder, halfe blown and beened with beaftly blood by the neck, whereunto she had fastned a little flponge, into the necke of her wombe, for the flponge being filled and swollen up by the accusto- med moisture of the wombe, so hold up the oxes bladder that hanged thereat, that she might safely goe without any feare of the falling of it out, neither could it be pulled forth but with good force. For this her device shee was put into Prison, and being first whipped, was after banished. Their cozenage is not much unlike this, who by filly applying a sleepe paunch to their groines, counterfeit themselves to bee burthened.

Anno Dom. 1561, there came to Paris a lafty, floury, and very fat Norman woman being about one hundred yeares old, who begging from door to door, did call to meet with rich women, and very familiarly and profly would relate unto them her misfortune, saying she had a snake in her belly, whose crept in at her mouth, as thee slept in an hempe-land: she would let one feel her tullre, by putting their hand unto her belly, adding also that she was troubled day & night with its unceflant gnawing of her guts. The novelty of this sad chance, moved all to pity & admiration, wherefore as much as they could, they assist ed her with means & counsel. Among the rest, there was a woman of great devotion and charity, who lending for Dr. Hollerius, Chevalier, and mee, asked us if this snake could by any meanes be gotten forth. Hollerius gave her a strong purgation, hoping that by stiring up the expulsive facultie, the serpent might be cast forth, together with the noxious humors. But this hope had no such success. Wherefore when as we met againe, wee thought it fit to put a Speculum Maius into the necke of her wombe, so to see if we could discern either her head or tacle: but making large dilation of her womb, could see no such thing, onely wee observed a certaine voluntary motion, whereof shee her selfe was the author, by contractinge and dilating the muscles of the lower belly. Which when as wee had observed, perceiving the deceit and imposture, we thought good to terrify her and make her confess the deceit, to tell her that she must take another, but that a more strong purgation, that what wee could not doe by the former, as more gentle, we might attaine to by the latter, as farre stronger. She dissembling all feare, and conscious of her craft and dissimulation, we thought good so to terrify her and make her confess the deceit, to tell her that shee must take another, but that a more strong purgation, that what wee could not doe by the former, as more gentle, we might attaine to by the latter, as farre stronger. She dissembling all feare, and conscious of her craft and dissimulation, after wee were gone in the evening, packing up her fluffe, and a great deale more than her owne, she secretly stole away, nor bidding her hostesse farewell: and thus at length the fraud was apparent, to the losse of the honeft Gentlewoman, I saw this baggage, sixe daies after, sitting lustily upon a Packe-horse, at the gate Mont-martre, and laughing heartily with such as brought Sea-fisli to to wne: and she was returning (as it was most likely) into her country, seeing her cozenage was discovered here.

Such as feignethemelfes dumbe, draw backe and double their tongues in their mouths. Such as falling downe counterfeit the falling fickeneffe, bind dryly both their Wrists with plates of iron, tumble and rowle themselves in the mire, sprinkle and defile their heads and faces with beaftly blood, and ilake their limbs and whole body. Laffly by putting hope into their mouths, they foame at the mouth like those that have the falling fickeneffe. Othersome with flouse make a kind of glowe, where with they befmeare their whole bodies, as if they had that Leprofie or Scab, that is vulgarly termed, Malem facinis manus. Neither must we thinke this art of counterfeit, and cheating begging to bee new, and of late invention, for long agoe it flourished in Afia, even in the time of Hippocrates, as may appeare by his booke De Aere, Liqui, & Aquae. But by how much this diseafe hath taken more deepse root; and growne
grown more inveterate by proceffe of time, by fo much it muft more diligently and carefully be looked to and prevented, by cruelly punishing fuch counterfeiters: for that by this fained begging, as the nourisher of floth and idleness of all dishonesty, that which is taken from the good is beftowed upon the ill, and one wicked & counterfeit beggar hurts all other wretched people.

Chap. XIX.

Of Strange or Monftrous accidents in Diseases.

Hat monftrousneffe foever was in the laft mentioned parties, it was made up by the craft of beggars for filthy gaine. But if there be any monftrousneffe in the following narrations, it is of nature, but working, as it were, miraculoufly, by fecret and occult means, for thus there are oft times monsters in diseases. Before the town of St. John de Angeley, a foldier called Francis, of the company of Captaine Muret, was wounded with a Harquebuz-shot on the belly, betweene his navell and sides; the bullet was not taken out, because the Chirurgians, who searched him diligently, could not finde it: wherefore he was troubled with grievous and tormenting paines, untill the ninth day after hee received the wound, the bullet came forth at his fundament: wherefore within three weckes after he was perfectly whole. Hee was healed by Simon Girney, the Chirurgian of the French companies.

James Pope, Lord of St. Albans in Dauphinie, was wounded at the skirmish at Chasnay, having three harquebuz bullets enting into his body, one whereof pierced under his throat, where it buncheath out as with a knot, neare to the pipe of his lungs, even to the beginning of the vertebra of the necke, in place where the leaden bullet stuck, and as yet doth remaine. Hereupon he was affailed with many and fearefull symptomes, as a feaver, and a great swelling of his whole necke, fo that for ten whole daies he could swallow nothing but brothes and liuid things. Yet he recovered, and remaineth well at this present, by the cure of James Balan the Chirurgian.

Alexander Beneleus makes mention of a certaine countrician, who, shot into the bucke with a dart, drawing out the (baft, the head was left therin, a awkward iron length about the breadth of two lingers, but hooked and sharped on the fides. When the Chirurgian had carefully and diligently sought for it, and could by no means finde it, he healed up the wound, but two months after this crooked head came forth at his fundament.

The fame author telleth that at Venice a virgin swallowed a needle, which some two yeeres after the voided by urine, covered over with a flone, gathered about vicious humour.

Catherine Perlan, the wife of William Guerrier, a Draper of Paris, dwelling in the Jewry, as the rode on horse-backe into the country, a needle out of her pin-cushion, that got under her by accident, ran fo deep into her right buttocke, that it could not by any art or force bee plucked forth. Fortune met this after shee went for mee to come to her, and she told mee that as often as she had doe with her husband, thefe suffered extreme pricking paine in her right groine; putting my hand thereunto, as I felt it, my fingers met with some thing flame and hard: wherefore I used the matter so, that I drew forth the needle all rufly: this may be counted a miracle, that flie, naturally heavy, should rife upwards, from the buttocke to the groine, and pierce the muselles of the thigh, without caufing an abcefe.

Anna Dom. 1566. the two fontes of Laurence Colle (men excellent in cutting for the stone) took forth a stone of the bignesse of a wall-nut, in the midst whereof was a needle, just like to that those-makers use: the patients name was Peter Cecquius, dwelling in the street Galand, at the place called Maukers at Paris, and I thinke he is yet living. This stone was shewed to King Charles the ninth, for the monftrousneffe of the thing, I being then present, which being given me by the Chirurgian, I preferve
preferve amongst my other rarities. Anno Dom. 1570. the Dutchess of Ferrara at Pa
eris, sent for John Collo, to take a stone out of a Confectioner. This stone, though it
weighed nine ounces, and was as thicke as ones fist, yet was it happily taken out, the
patient recovering, Francis Rousser, and Joseph Javelle, the Dutchesse Physicians, be-
ing present. Yet not long after this Confectioner died by the stoppage of his water,
by reason of two other little stones, which about to descend from the kidnies to the
bladder, stayed in the mid-way of the Ureters. The figure of the extracted stone
was this.

The figure of a stone taken forth of the Bladder of a Confectioner.

Anno Dom. 1566. Laurence Collo the younger, tooke three stones out of the
bladder of one dwelling at Marly, called commonly Tire-vit : because being trou-
bled with the stone from the tenth yeere of his age, hee continually scratched his
yard, each of the stones were as bigge as an Hens egg; of colour whire, they all
together weighed twelve ounces. When they were presented to King Charles, then
lying at Saint Meure des Fausses, hee made one of them to bee broken with a ham-
mer, and in the middele thereof there was found another, of a chestnut colour, but
otherwise much like a Peach stone. These three stones, bestowed on mee by the
brethren, I have here representative to the life.
I have in the dissecting of dead bodies, observed divers stones, of various forms and figures, as of piggies, whirlig, and the like. Dalechamps telleth that hee saw a
man, which by an abceffe of his loins, which turned to a Fistula, voided many stones
out of his kidneies, and yet notwithstanding could endure to ride on horse-backe,
or in a coach. John Magnus, the Kings most learned and skilfull Physitian, having in
cure a woman, troubled with cruel torment and paines of the belly and fundament,
sent for me, that by putting a Speculum into the fundament, he might see if he could
perceive any discernable cause of so great and pertinacious paine: and when as hee
could see nothing which might further him in the finding out of the cause of her
paine (following reason as a guide) by giving her often glysters and purgations, hee
brought it to a pafe, that shee at length voided a stone at her fundament of the big-
nesse of a Tennis ball: which once avoided, all her paines ceased.

Hippocrates tells that the servant of Dyfere in Larissa, when she was young, in us-
ing venery was much pained, and yet sometimes without paine, yet shee never con-
ceived. But when as she was sixty years old, she was pained in the after-noone as if
she had beene in labour. When as the one day before noone had eaten many lekes,
afterward she was taken with a most violent pained, farre exceeding all her former,
and she felt a certaine rough thing rising in the orifice of her wombe. But the fall-
ing into a swoone, another woman putting in her hand, got out a sharpe stone of the
bignesse of a whirlig and then shee forthwith became well, and remained so.

In a certaine woman, who, as Hollerius tellles, for the space of foure moneths was
troubled with an incredible paine in making water, two stones were found in her
heart, with many abceffes, her kidneyes and bladder being whole. 

Anthony Benevenius a Florentine Physitian writes, that a certaine woman swal-
lowed a brafe needle without any paine, and continued a yeere after without feel-
ing or complaining of it: but at the end thereof she was molestid with great pains
in her belly, for helping of which she asked the advice of all the Physitians she could,
making, in the interim, no mention of the swallowed needle. Wherefore shee had
no benefit by all the medicines shee tooke: and shee continued in paine for the space
of two yeeres, untill at length the needle came forth at a little hole by her navell, and
then shee recovered her health.
them that are about him; then with prongs, and such things they do belabour his belly, where as his skin is soft and thinne, that at length they kill him, and uncauing him, they make ready his flesh, and eat it for delicious food. John Lercus, in his history of Brazil, writes that the Salvages of that country willingly feed upon Crocodiles, and that he saw some who brought into their houses young ones, wherewith the children gathering about it, would play without receiving any harm thereby.

True (saith Pliny) is that common opinion, Whatsoever is brought forth in any part of Nature, that also is in the sea, and many other things over and above, that are in no other place. You may perceive that there are not only the resemblances of living creatures, but also of other things; if you looke upon the sword, saw, cow-cumber, like in smell and colour to that of the earth, that you may leefe wonder at the Sea feather and grape, whose figures I have here given you out of Rondelius.

The sea feather is like those feathers of birds, which are wore in hats for ornament, after they are trimmed and druest for that purpose. The fisher-men call them sea-prickes, for that one end of them resembleth the end of a mans yard, when the prepuce is drawn off. As long as it is alive it swells, and becomes sometimes bigger and sometimes leffer; but dead, it becomes very flaccide and lanke: it shinces bright on the night like a starre.

You may by this gather, that this which wee here express is the Grape whereof Pliny makes mention, because it is on the surface and upper part thereof it much resembles a faire bunch of Grapes; it is somewhat longish, like a mis-shapen clubbe, and hangs upon a long flalke. The inner parts are nothing but confusion, sometimes distinguishe with little glandules, like that wee have here figured alone by it selfe.

In the Sea neere the land Hiptamola in the West Indies, there may be scene many monstrous fishes, amongst which Thevet in his Cosmography thought this most rare and observable, which in the vulgar language of the natives is termed Aloes. For it is just like a goose, with a longe and straighte necke, with the head ending sharpe, or in a Cone, not much unlike a sugar-pearce, it is no bigger than a goose, it wanteth scale, it hath foure finnes under the belly for swimming, when it is above water you would say that it were a goose.

The Sarmanian, or Easernere German Ocean containes fishes unknowne to hot countries, and very monstrous. Such is that which resembling a snale, equals a barrel in magnitude of body, and a flag in the largeness and branches of her horns: the ends of her horns are rounded as it were into little balls, shining like unto pearls, the necke is thicke, the eyes shining like to lighted candles, with a roundish hole fet with hairs like to a cats, the mouth wide, whereunder hangs a piece of finfe very ugly to behold: it goes on foure legges, with so many broad and crooked feer, the which with a longtail, and variegated like a Tiger, serves her for finnes to swim withall.
The blood of great Tortoises is good for the leprous, as Thevet in his Cosmography affirmeth that hee saw this in Denmark.

In a deep lake of fresh water, upon which stands the great city or towne of The-misitan, in the Kingdome of Mexico, which is built upon piles, like as Venice is, there is found a fish of the bignesse of a Calfe, called by the southerne Salvages, Andura, but by those of the place, and the Spaniards the conquerers of that place, Hoga. It is headed and eared almost like a swine; from the chaps hang five long bearded appendices, of the length of some half a foot, like the beard of a Barbell. It hath flesh very grateful and good to eat. It bringeth forth live young like as the Whale. As it swimmes in the waters, it seemes green, yellow, red, and of many colours, like a Chameleon; it is most continent about the shore sides of the lake, and there it feedes upon the leaves of the tree called whence also the fish hath its name. It is a fearefully toothed and fierce fis, killing and devouring such as it meeteth withall, though they bee bigger than her selfe: which is the reason why the Fishermen chiefly desire to kill her, as Thevet affirmeth in his Cosmography.

Andrew Thevet in his Cosmography writes that as hee failed to America, hee saw infinite store of flying fishes, called by the salvages Bulampeh, who rising out of the water, flye some fifty paces, escaping by that means from other greater fish that think to devour them.

This kinde of flying fishe exceeds not the bignesse of a Mackrell, is round headed, with a blew with backe, two wings which equall the length of almost all their body. They oft times flye in such a multitude, that they fall foule upon the failes of ships, whilst they hinder one anothers flight, and by this means they fall upon the decks, and become a prey to the Saille; which something we have read confirmed by John Leres in his history of Brazil.

In the Venetian gulfe, betweene Venice and Ravenna, two miles above Quinola, anno Dom. 1550. there was taken a flying fishe, very horrible and monstrous, being foure foot long, it had a very great head, with two eyes standing in a line, and not one against another, with two ears, and a double mouth, a snout very flieby and greene, two wings, five holes in her throat, like those of a Lamprey, a tail as ell.
Of Monstres and Prodigies.

There are so many and different sorts of shells to be found in the Sea, that it may be truly said, that Nature, the hand-maid of the Almighty, deposits it selfe in the framing of them. In so great diversity I have chiefly made choice of three to treat of here, as those that are worthy of the greatest admiration. In thefe lye hid certain little fishes, as snails in their shells, which Arisotle calls Cancellis, and hee affirmeth them to be the common companions of the cutted and shell fishes, as thofe which are in their species or kinde are like to Lobsters, and ufe to be bred without shells, but as they crepe into shells, and there inhabit, they are like to shell fishes. It is one of thefe that is termed the Hermite. He hath two somewhat long and flender horns, under which are his eyes, alwayes standing out of his head, as thofe which he cannot plucke and draw in, as Crabbes can. His fore-feet have claws upon them, wherewith he defends himselfe, and carries meat to his mouth, having two other on each fide, and a third being letfier, the which he ufed in going. The female lays egges, which hang forth at her backe part as if they were put upon a thread, being joyned together by certaine little membranes. Laftly, in the opinion of Alcinus, the Cancellis or small Cray-fish is borne naked and without a shell, but within a while after, the of many which thic findes empty, makes choice of a fit one, and when as growne bigger, the cannot bee contained or dwell any longer therein, or else being stimulated with a naturall desire of copulation, he removes into a more capacious and convenient one. These little Cray-fishes oft times fight together for their habitation, and the stronger carries away the empty shell, or else makes the weaker to quit possession. Now the shell is either of a Nerita, or Turbe, and oft times of a small Purple; and entering into possession, he carries it about, there feeds and growes, and then seekes a more capacious one, as Arisotle faith in the formerly cited place.

The figure of a monstrous flying Fish.

long, at the setting on whereof there were two little wings. This monfter was brought alive to Great, and presented to the chief of the city, as a thing whereof the like had not beene formerly seen.
The effigies of the empty shells whereinto the Cancelli use to creep to dwell.

The effigies of Bernard the Hermite housed in his shell.

The figure of him out of his Cell.
Some think that this Bernard the Hermite is that kind of *Cancellus* which is by *Pliny* termed *Pinnator*; but in truth the *Pinnator* is not a kind of *Cancellus* or *Crasy-fish*, but of a little Crab. Now in *Aristotle* there is much difference between *Cancellus* and *Cancer parvus*, though *Pliny* may seem to confound them; for he is bred naked, having his crust only, but without a shell; wherefore seeing that by nature he wants it, he diligently searches for it, and dwells in it, when as he hath found it:

But the *Pinnator* is not bred by it selfe alone, but in *Pinnae* and some others, and hee changeth not his habitation, because (as *Aristotle* thinks) being of the kind of dwarfe Crabbes, it never grows bigge, neither dwells it in empty shells. Now the *Pinnae* or *Pinna* is a kinde of shell-fish, it breeds in muddy places, and is alwayes open, neither is it at any time without a companion, which they therefore call the *Pinnator* or *Pinnophylaxi*i. e.) the Pin-keeper, as *Pliny* faith. Verily that these things are thus, you may plainly perceive by these words of *Athenaeus*. *Chryssippus Solenius* æ de *Honest.* & *Polemi.* faith the *Pinnae* and *Pinnator* assist and further each other, neither can they live afunder. The *Pinnae* may be referred to the kinds of oysters, but the *Pinnator* is a dwarfe Crabe: the *Pinnae* opens her shell for the little fishes to enter thereinto; the *Pinnator* stands by, observing if any come in, which if they doe, he gives the Pin notice thereof by biting, who presently thereupon shuts her shell, and so they feed together upon that they catch by this means. Thus *Athenaeus*. She is also for this her craft mentioned by *Plutarch* in his writings. The *Pinnator* is sometimes called by *Pliny*, *Cancer parvus* affectator.

But that which by these authors is attributed to the dwarfe Crabbes, the same by *Cicero* is ascribed to the little shrimpe: now the *Pinnae* (faith hee) opening her two large thels, enters into confederacy with the little shrimpe for getting of food, wherefore when little fishes swimme into her gaping shell, then the *Pinnator* amonished by the shrimps biting her, shuts her shell; thus two unlike creatures get their livings together. But *Plutarch* seemes to make the *Pinnae* to be the Pearl of Oyster, in that work of his, whereas he enquirith whether the craft of Water or Land beastes be the greater.

But amongst the most miraculous fishes may fitle bee placed the *Nautilus* or *Sayler-fish*, of some called *Pompilus* (it is thought to bee a kind of *Polypus*) it comes with the face upwards to the tope of the Sea, raising it selfe by little and little, that casting forth all the water by a pipe, as if it had a Pumpe, it easly floats; then putting backe the two first tendrills or armes, it extends betweene them a membrane of wondrous finenesse or thinnesse, which gathering aire like as a faile, and the rowing with the rest of her armes, she guides her sheile with her taile in the midst, as a Rudder. Thus shee sailles along in imitation of Pinnaces, and if any thing affright her, she presently takes in water, and sinkes her selfe.

The shape of the *Nautilus* or *Sayler-fish*.
The better to show this treatise of Monsters, abusing the name with the Poets, we will reckon up the whole amongst the Sea-monsters, by reason of his monstrous and wondrous magnitude. Now the Whale is the greatest by much of all the fishes of the Sea, most commonly this beast is thirty five cubits long, eight high, the fit of his mouth is eighteen foot long, teeth they have none, but in head thereof in each jaw horned placke excrescences or finnes [which we vulgarly terme Whale bones] which by little and little end in small haires like to a twines bristles, which commingling and standing out of his mouth, are in head of Guides, left whilst he swimmes with a blind and rapide violence, he might runne against a rocke. His eyes are distant one from the other the space of fourt elles, which outwardly appear small, but inwardly they are bigger than a mans head; wherefore they are deceived that say that they are no bigger than an Oxes eyes: his nofe is short, but in the middle of his forehead he hath a pipe wherein hee drawes in the aire, and casts forth a whole shower or rain of water, that therewith he will even finke the vessel or boats of the Marryners; when hee hath filled himselfe beyond measur, hee cyes or roars with soe great or strong a voice, that hee may bee heard two miles off. Hee hath two very large finnes upon his sides wherewith hee swimmes, and under which in time of danger he hides his young; hee hath none upon his backe. His tale in fire is like to the tales of Dolphins, neither is it much unlike in shape, when which he moves, hee tootteth in the Sea, that hee drowns and over-turnes the boats that hee toucheth. You may by difeating them finde that a Whale brings forth live young, and gives them sucke, for the male hath testicles and a yard, but the female a wombbe and dugges. They are taken in divers places about winter, but chiefly about the coast of Aquitaine, at a small towne which is vulgarly called Barre, some five miles distant from Bayou; whereunto I being sent by King Charles the ninth when he was at Bayon, to cure the Prince of Roche Sar-Tou, I was an eye witnesse how they are caught; and also I confirmed that which I had formerly read to that purpose, in that excellent and most true history of fishes set forth by Bomdelinus. Now at that towne there is a little hill, in the toppe whereof there is a Tower of very great antiquity, from which as from a watch-tower they keep watch whether or no any Whales swimme that way. Wherefore the watch-men from the tower, either seeing, or by the horrible noife hearing a Whale ro passe by that way, they give warning thereof to the inhabitants by the beating of Drums, and ringing a Bell; which signe once given, they all runne forthwith, as to extinguth the city if it were on fire, being furnished with weapons and all things fitting for that purpose. For the people of that country are very diligent and expert in catching the Whale. Wherefore in each of the boats furnished with all things either to affaile or flye, there are put ten lusty rowers, and divers others furnished with harping-irons to strike the Whale; which being cast and taftened in her, they loofe out huge long ropes fastened to them, untill such time as he be dead, then together with the ropes, and affifted by the waves of the sea, they draw the Whale wearied with running and labouring, and taunting by reason of the magnitude and multitude of his wounds, being in the time of their conflict diligently chafed and driven toward the shore a land; & merrily part the prey, each whereof hath his finne, according to the number of the irones thrown, the magnitude of the wound, and the necessity and excellency of the wounded part for life: each of their harbinger-irons are knowne by their peculiar markes. In the heat of the skirmish many stand up and downe in boats, onely for this purpose, to take up such as chance to fall into the Sea, left they should be drowned. The males are caught with more difficulty, the females more easilie, especially if their young ones bee with them, for whilst they linger to helpe and succour them, they lose the occasion of escaping. The flesh is of no effencem the tongue onely is commendable; for being very large, and of a very lax substance, it is poudred, and by most Gentlemen accounted for a dainty. The lard is dispersed over many countries, to be boiled & eaten with fish in the time of Lent, that Gourmandizers may have something to serve them in head of flesh which is then forbidden. There is great store of fat in them in the parts under the skin and belly, which melted, concretes not againe, by reason of the subtilty of the parts, they keepe it to buyne in Lappes, and to use about their ships. The
houses of the fish-eaters are builded with their bones; also orchards in the coast of
Aquitaine are fenced with these bones. The finnes that stand forth of their mouths, Whalebone,
which are commonly called Whale-bones, being dried and polished, serve to make
busks for women, whip-staves, and little staves, as also to stiffen garments. Many
make seats or stools of the vertebrae, or spindills of the backe-bone.

The manner of the cutting up of the Whale.

In the river Scilde, ten miles from Antwerp, anno Dom. 1577, the second day
of July, there was a Whale taken, of a blackish blue colour, she had a spout hole in
the top of her head, out of which she cast great store of water: she was fifty eight
foot long, and fifteen foot high: her tail was fourteen foot broad; from the eye
to the end of her nose was some fifteen foot. Her lower jaw was five foot on each
side, she had twenty five teeth, which she could hide in her upper jaw, there being
holes for them; it being wholly toothlefe; for which one thing this Whale may bee
judged monstrous, for that nature hath denied them teeth, and for that in creatures
that are not horned, it is so ordained by nature, that when they have teeth in their
lower jaw, they should have others also in the upper to answer to them, so to
chaw their meat. The longest of these teeth exceeded not five inches.

There is (as Pliny reports) a very small fish accustomed to live about rocks, it is
called Echeneis, never exceeding the length of a foot; it is thought that hippes goe
more slowly if this flock to them: wherefore the Latines have also given it the name
of Remora, for that a ship being under sail with a good wind, may by the
Echeneis feazing on her as if she would devour her, be stayed against the Staylers wills, and
stand still as if she were in a false harbour. Wherefore shee is said in the Aelian fight
to have stayed the ship of Marcus Antonius, hastening to goe about and encourage
his houlders, so that he was forced to enter into another ship, and thereupon Cæsar's
navie came upon them too hastily, and before they were provided.

Shee also said the ship of the Emperor Cæsar, comming from Actium to Athens,
his ship of all the nave making no way; neither did they long wonder at this
ship, the cause being presently knoune; some forth with leaping into the Sea to finde the
cause thereof, there found her about the ship, even flicking to the Rudder, and they
shewed her to Cæsar, being wrath that this so small thing should stoppe him, and
countermaund the endeavoure of forty Rowers.

Therefore this little fish tames and infringes the violence and madnesse of the
world, & that with no labour, not with holding or any other way, but only by flicking
thereunto. Certainly how ever it comes to passe, who from this example of holding
of ships, can doubt of any power or effect of nature, in medicines which grow natu-
really? Yea & without this example, the Torpedo out of the sea also may be sufficient, & for the
who a farre off, and at a distance, if it be touched with a spear or rod, will benumb;
even the strongest armes, and retard the feet, how ever nimble to runne away.
Of the admirable nature of Birds, and of some Beasts.

Hat there bee divers things not onely in the Sea, but also in the aire, and earth, which by the wonderfull condition of their nature may equal that of Monfters, the onely Eftrich may ferve for a witneffe. It is the biggeft of Birds, though indeed it partly resembles a bird, and partly a beast (and it is familiar to Africa and Ethiopia) as which contrary to the nature of beasts hath feathers, and againf the cuftome of birds, cannot flye afoft: for it hath not feathers fit to flye, but like unto haires, yet will it out-run a horfe. The natural force of the flomacke in concocting is miraculous, as to which nothing is unamenable: she layes egges of a wondrous largettie, fo that they may bee framed into cuppes: their feathers are moft beautifull, as you may perceiue by this following figure.

**The figure of an Eftrich.**

Any one may easily gather of what a prodigious magnitude an Eftrich is, by the greattie of his bones. Three of these birds were kept at the Kings charge, by the Marfchall de Retz: one whereof dying, it was beftowed upon me, whereof I have with great dilegence made a Sceleton.
A. Shows the head, which was somewhat thicker than the head of a Crane, of the length of one hand, plaine from the crowne even to the beake; the beake being divided to the middle region of the eye, being roundish at the end thereof.

B. The necke, a yard long, consisting of seventene vertebrae, each whereof on each side is furnished with a transverse process looking downward, of some fingers length, excepting the two which are next the head, as which want the, and are joyned together by Ginglymos.

C. The backe is of a foote length, consisting of seven Vertebrae.

D. The holy-bone of two foote long, in whose top there is a transverse process, under which there lies a great hole.

E. Three more, but leffe.

F. G. H. After which there followes the cavity or socket, whereinto the head of the thigh-bone is received and hid. This externally and on the side produceth a perforated bone, noted with the letter, J. perforated I say at the beginning, for it is presently united at the letter, K. then is it forked and divided into two other bones, whereof one is bigger than the other. The leffe is noted with the letter, L. then are they both united at the letter M. each of them is halfe a foot and foure inches long. But from that part whereas they first begun to bee divided, to that whereas they are united, there is a hole some foure fingers broad, but the length of one hand, or more, and it is noted with the letter, N. The residue of the bone is like to a pruning knife three inches broad, but like in length at the end whereunder is the letter, O. it is joyned by colation.

P. The rumpe consisting of nine vertebrae, like to a mans. The thigh-bones are two, whereof that which is noted with the letter, Q. is of the length of a foot, and of the bended equall to a horse's thigh. The other next under (which peradventure you may call the legge bone) noted with R. is a foot and halfe long; it hath joyned thereto the Thibula, or leffe foci of the like length, but which grows smaller as it comes lower.

S. Is the legge, to which the foot adheres, being one foot and a halfe long, divided
The description of the bird of Paradise.

Jerome Cardane in his bookes De subullitate, writes that in the Islands of the Moluccas, you may sometimes find lying upon the ground, or take up in the waters, a dead bird called a Manucodiata, that is in Hebrew, the bird of God, it is never seen alive. It lives aloft in the aire, it is like a Swallow in body and beak, yet distinguished with divers coloured feathers: for those on the toppe of the head are of a golden colour, those of the necke like to a Mallard, but the tail and wings like Peacocks; it wants feet: Wherefore if it become weary with flying, or desire to sleep, it hangs up the body by twining the feathers about some bough of a tree. It paifteth through the aire, wherein it must remaine as long as it lives, with great celerity, and lives by the aire and dew only. The cokcke hath a cavity depred in the backe, wherein the hen laies and fits upon her egges. I saw one at Paris which was presented to King Charles the ninth.

Wee have read in Thevetus Cosmography, that he saw a bird in America, which in that country speech is called Tomas, in this very monstrous & deformed, for that the beake in length and thicknesse, exceeds the bignesse of the reft of the body; it feeds on pepper, as the black birds and sifhires with us do upon Ivice berries, which are not leffe hot than pepper.

A certain Gentleman of Provence brought a bird of this kinde from that country, to present it to King Charles the ninth, but dying in the way he could not present it alive: Wherefore the King wished the Marechale de Rets to give her to me, that I might
might take forth her bowels and embalm her, that the might bee kept amongst the Kings rarities. I did what I could, yet not long after she rotted: she resembled a crow in body and feathers, but had a yellow bill, a clear, smooth, and toothed like a saw, and of such length and thickensse as we formerly mentioned. I keep it yet as a certaine monstrous thing.

There this writes that in the land Zootera there is frequently found a certaine wild beast called Hulpis, of the bignesse of an Ethiopian Monkey. It is a very monstrous creature, but in nothing more, then that it is thought to live upon the aire only; the skinne, as if it were died in graine, is of a scarlet colour, yet is it in some places spotted & variegated; it hath a round head like to a boule, with feet round, broad, and wanting hurtfull nailes. The Moores kill it and use to eat the flesh of it, being first bruised, that so it may be the more tender.

In the Realme of Cambodia, of Abub, of Benga, and other mountaines of Gange, Plimant, and Canaga, which are in the inner India, beyond the river of Ganges, some five degrees beyond the Tropicke of Cancer, is found a beast, which the We.

Thetrome Germans call Giraffe. This beast in head, ears, and cloven feet, is not much unlike our Doe; it hath a very slender necke, but it is some fixe foote long, and there are few beasts that exceed him in the length of their legges: his tail is round, yet somewhat rough, having haire thereon somewhat longer than a Cow, it is spotted and variegated in some places with spors of a middle colour, betweene white and chestnut, so as Leopards are. For which cause by some greeke Historians it is called a Camelenopar
des: it is so wild before it bee taken, that with the good-will it will not so much as be seen. Therefore it inhabites and lives only in defart and secret places, unknown to the rest of the beasts of that region. He presently flyes away at the sight of a man, yet is he taken at length, for that he is not very speedy in his running away, once taken, he is as easily and speedily tamed as any wild beast whatsoever. He hath above his crowne two straight horns covered with haire, and of a foote length. When as he holds up his head and necke hee is as high as a Lance. He feeds upon herbes, and the leaves and boughes of trees, yea and he is also delighted with bread.
Such as fail in the red sea alongst the coast of Arabia, meet with an Island called by the Arabians Cademota; in that part thereof where the river Plata runneth, is found a wild beast, called by the barbarous inhabitants Parasoupi, being of the bignesse of a Mule, headed not unlike one, yet rough and haired like to a Bear, but not of so dark a colour, but inclining to yello\textcolor{red}{w}, with eleven feet like a Hart: she hath two long horns on her head, but not branched, somewhat resembling those so much magnified horns of Unicorns. For the natives of the place, bitten by the venemous tooth of either beast or fish, are presently helped and recover by drinking the water wherein such horns have been infused for five or seven days space, as Theophrastus in his Geography reports.

In one of the Islands of the Molucca there is found a Beast living both on land and water like a Crocodile; it is called Camphurce, it is of the bignesse of an Hart, it hath one horne in the forehead, moveable after the fashion of the nofe of a Turky-cocke: it is some three foot and an halfe long, and never thicker than a mans arm; his neck is covered over with haire of an ash colour, he hath two feet like to a gooles feet, wherewith he swims both in fresh and salt waters. His fore feet are like to a frage, bee
be lives upon fish. Many have persuaded themselves that this beast is a kind of Unicorne, and that therefore his horn should be good against poisons. The King of the Iland loves to be called by the name of this beast, and do also other Kings take to themselves the names of the wilde beasts, fishes, or fruits, that are most precious and observable in their dominions, as Theven reports.

Mauritania and Aithopps, and that part of Aithopps that is beyond the desarts and fyres, bring forth Elephants, but those of India are farre larger. Now although in the largeffe of their body they exceed all foure footed beasts, yet may they bee more speddily and easely tamed than other beasts. For they may be taught to doe many things above the common nature of beasts. Their skin is somewhat like to a Buffles, with little haire upon it, but that which is, is ash coloured, his head large, his necke short, his ears two handfulls broad, his nose or trunke very long, and hanging downe almoft to the ground, hollow like as a trumper, the which he useth in stead of an hand, his mouth is not farre from his breaste, nor much unlike a fwine, from the upper part whereof two large teeth thruf forth themselves, his legges are thicke and strong, not confifting of one bone as many formerly have fally believed (for they kneele to admit their Rider, or to bee laden, and then rife up againe of themselves) his feet are round like a quoit some two or three hands breadth, and divided into five clefses. He hath a taile like a Buffle, but not very rough, some three hands breadth long, wherefore they would be much troubled with flies and waspes, but that nature hath recompenced the shortnes of their tailes by another way, for when they finde themselves molested, they contract their skin fo strongly, that they fuffocate and kill these little creatures taken in the wrinkles thereof, they overtake a man running by going onely, for his legges are proportionable to the rest of his body.

They feed upon the leaves and fruits of trees, neither is any tree fo ftrong or well rootet, which they cannot throw downe and breaque. They grow to bee fixtene handfulls high, wherefore fuch as ride upon an Elephant are as much troubled as if they went to fee. They are of fo unbridled a nature, that they cannot endure any head-flall or reines, therefore you must luffer them to take the courfe and way they please. Yet doe they obey their country men without any great trouble; for they feeme after some fort to understand their speech, wherefore they are easely governed by their knowne voices and words. They throw downe a man that angers them, first taking him up with their Trunke and lifting him aloft, and then letting him fall, they tread him under foot, and leave him not before he be dead. Aristotle writes that Elephants generate not before they be twenty yeares old: they know not adultery, neither touch they any female but one, from which they allo diligently abstain when they know the hath once conceived. It cannot be knowne how long they goe with younge, the reafon is for that their copulation is not feen, for they never do it but in secret. The females bring forth setting upon their hindes legges, and with paine like women, they lick their young, and teafe prettily see and goo, and flicke with their mouthes, and not with their Trunkes. You may fee Elephants teeth of a monftrous and stupendious bignesse, at Venice, Rome, Naples, and Paris; they terme it ivory, and it is used for Cabinets, Harps, Combes, and other such like ufe.
The figure of an Elephant.
We have read in Thevet, that in Florida there are great Bulls, called in that country tongue Beestrel, they have hornes of a foot long, a bunch on their backe like a Camell, their haire long and yellow, the taile of a Lion; there is scarce any creature more fierce or wild, for it can never be tamed unless it be taken from the dam. The Salvages use their Hides against the cold, and their hornes as an Antidote against poyson.

The same author affirmines that while he layled in the red sea, hee saw a monfter in the hands of certaine Indian merchants, which in bignesse and shape of his limbs was not unlike a Tiger, yet had the face of a man, but a very flat nolle: besides, his fore feet were like a mans hands, but the hinde like the feet of a Tiger, hee had no taile, he was of a dun colour: to conclude, in head, eares, necke, and face it resembled a man, but in the blackish and curled haire, a More; for the other parts they were like a Tiger; they called it Thanath.

This following monfter is so strange that it will scarce bee believed, but by thofe that have feene it; it is bred in America, and by the Salvages called Hait, of the bignesse of a Monkey, with a great belly, almoft touching the ground, and the head and face of a child: being taken, it mournes and fighes like a man that is troubled and perplext; it is of an alfe colour, hath the feet divided into three clawes, foure fingers long, and sharper than thofe of a Lion: it climbs trees, and lives there more frequently than upon the ground, the taile is no longer than the breadth of three fingers. It is strange and almoft monftrous that thofe kind of creatures have never bin feene to feed upon or eat any thing: for the salvages have kept them long in their houfes to make triall thereof, wherefore they thinke them to live by the aire.
I have taken this following monster out of Lee's African history; it is very deformed, being round after the manner of a Tortoise, two yellow lines crossing each other at right angles, divide his backe, at every end of which he hath one eye, and also one ear, so that such a creature may see on every side with his four eyes, as also heare by his so many ears: yet hath hee but one mouth, and one belly to containe his meat; but his round body is encompassed with many feet, by whose helpe he can go any way he pleafe without turning of his body, his tail is something long and very hairy at the end. The inhabitants affirme that his blood is more effectuall in healing of wounds than any balsome.
Of Celestial Monsters.

Ereadventure it hath not bin strange that monsters have beene generated upon the earth and in the Sea: but for monsters to appear in heaven, and in the upper region of the aire, exceeds all admiration. Yet have wee often read it written by the antients, that the face of heaven hath beene deformed, by bearded, tailed, and haired Comets; by meteors representing burning Torches, and lamps, pillars, darts, shields, groups of clouds, hostilely affailing each other, Dragons, two Moones, Sunnes, and the like monsters and prodigies.

Antiquity hath not seene any thing more prodigious than that Comet which appeared with bloody haire in the month of October, 1528. for it was so horrible and fearefull a spectacle, that divers died with feare, and many fell into grievous diseases; going from the East to the South, it endured no longer than one hower and a quarter: in the toppe thereof was seene a bending arme holding a great sword in a threatening hand; at the end thereof appeared three starrs, but that over which the point of the sword directly hanged was more bright and cleare than the rest: on each side of this Comet were seene many speares, swords, and other kinds of weapons tied with blood, which were intermixt with mens heads, having long and terrible haires and beards, as you may see in the following figure.

A Comet with bloody haire.

The figure of a fearfull Comet.

Also there have beene seene great and thicke barres of Iron to have fallen from heaven, which have prestently beene turned into swords and rapiers. At Sutolith in the borders of Hungary, a stone fell from heaven with a great noise, the seventh day of September, anno Dom. 1514. it weighed two hundred and fifty pound: the Citizens hanged it up with a great iron chaine put through it, in the midst of the Church.
of their City, and divulged to them as a miracle, to travellers of better note that past that way. Pliny reports that the clashing of armour, and the sound of a trumpet were heard from heaven often, before and after the Cimbrian war. The same author also writes that in the third Conful-ship of Marius, the Ambrines and Tudorines saw the heavenly armies coming from East and West; and so joining, those being vanquished which came from the East. Which same thing was seen in Lugolia, at a town called Juba, two hours after mid-night, anno Dom. 1533. But in anno Dom. 1550, upon the nineteenth day of July, in Saxony, not far from Wittenberg, there appeared in the air a great flagge, accompanied with two armed hosts, making a great noise in their conflict, and at the same instant it rained blood in great abundance, the sun seemed to be cloven into two pieces, and the one of them to fall upon the earth. A little before the taking of Constantinople from the Christians, there appeared a great army in the air appointed to fight, attended on with a great company of dogs and other wild beasts. Julius Obsequius reports that in anno Dom. 453, it rained flesh in Italy, in greater and lesser pieces, part of which were devoured by the birds before they fell upon the earth; that which fell upon the earth kept long unpurified, and unchanged in colour and smell. Anno Dom. 589, Otho the third being Emperor, it rained corn in Italy. Anno Dom. 186, it rained milk and oyle in great abundance, and fruit-bearing trees brought forth corn. Lycotheus tells that in the time of Charles the first, whilst Maidenberg was besieged, three suns first appeared about seven a clock in the morning, and then were seen for a whole day, whereof the middlemost was the brightest, the two others were reddish and of a bloody colour; but in the night time there appeared three moons. The same appeared in Bavaria, anno Dom. 1554.

Earthquakes.

But if so prodigious and strange things happen in the heavens besides the common order of nature, shall we think it incredible that the like may happen in the earth? Anno Dom. 542, the whole earth quaked, Mount Aeina cast forth flames and sparks of fire, with which many houses of the neighbouring villages were burnt. Anno Dom. 1531, in Fornigall there was an earthquake for eight days, and it quaked seven or eight times each day; so that in Lisbon alone it cast down a thousand and fifty houses, and more than five hundred were spoiled. Ferrara lately was almost wholly demolished by a fearsome earthquake. Above all which ever have been heard is that prodigy which happened in the time of Pliny, at the death of Nere the Emperor in the Marcine field, the whole Olive-field of Velius Marcellus a Roman Knight going over the high way, and the fields which were against it coming into the place thereof. Why should I mention the miracles of waters, from whose depth and streams, fires and great flames have oft broke forth? They tell out of St. Augustine, that the fire of the sacrifice, which for those seventy yeeres of the Babylonian captivity endured under the water, was extinguished, Antichus telling the priest-hood to Japhon. What miracle is this, that the fire should live in the water, above its force and natural efficacy, and that the water should forget the extinguishing faculty? Verily Philosophers truly affirm that the elements, which are understood to be contrary, and to fight in variety among themselves, are mutually joyned and tyed together by a marvellous confederacy.

The End of the Twenty-fifth Booke.
OF THE
FACULTIES OF
SIMPLE MEDICINES,
AS ALSO
OF THEIR COMPOSITION AND USE.

THE TWENTY SIXTH BOOK.

THE PREFACE.

Amongst the causes which we term healthful, and other remedies which pertain to the health of man, and the expelling of Diseases, Medicines easily challenge the prime place; which (as it is delivered by Solomon) God hath produced out of the earth, and they are not to be abhorred by a wise man; for there is nothing in the world which sooner, and as by a miracle, assuageth the horrid torments of diseases. Therefore Herophilus called them suitably administered, the hands of the Gods. And hence it was that such Physicians as excelled in the knowledge of Medicines, have amongst the Antients acquired an opinion of Divinity. It cannot by words be expressed what power they have in healing. Wherefore the knowledge of them is very necessary not only for the prevention, but also for the driving away of Diseases.
CHAP. I.

What a Medicine is, and how it differeth from nourishment.

A medicine is that which hath power to change the body according to one or more qualities; and that such as cannot bee changed into our nature: contrary whereunto we termre that nourishment which may be converted into the substance of our bodies. But what we define them by the word power, because they have not an absolute nature, but as by relation and depending upon the condition of the bodies by whom they are taken. For that which is medicine to one, is meat to another, and that which is meat to this, is medicine to that. Thus for example, Hellebore is nourishment to the Quail, but a medicine to man: Hemlocke is nourishment to a Sterling, but poison to a Goose: the Ferra is food to an Afe, but poison to other carrell. Now this diversity is to be attributed to the different natures of creatures.

It is recorded in history, that the same by long use may happen in men. They report that a maiden was preferred to Alexander the great, who, nourished with Napellus, and other poisons, had by long use made them familiar to her, so that the very breath the breathed was deadly to the by-flanders. Therefore it ought to seeme no maruaile, if at any time happen, that medicines turne into the nature and nourishment of our bodies: for we commonly may fee birds and swine feed upon serpents and toads without any harme: and lastly,

Serpenti Ciconia pullos
Nutrit & pervia rum lacta : 
Illi eadem fumpta quern animalia pensis.

The Storie with Serpents and with Lizards caught;
In waylefe places nouriseth her brood :
And they the fame pursuie, when as they're taught
To use their wing, to get their wish't for food.

CHAP. II.

The differences of Medicines in their matter and substance.

Ven as the concealed glory of worldly riches lyeth hid in the bowels of the earth, and depths of the sea and waters, as gold, silver, and all sorts of metals, gemmes and precious stones, furnished with admirable virtues, so we may behold the superficies of this earth clothed with almost an infinite variety of trees, shrubs, and herbs: where we may contemplate and wonder at the innumerable diversities of roots, leaves, flowers, fruits, gemmes, their fmells, pleasant tastes and colours, but much more at their virtues. This same mother Earth, as with her breasts, nouriseth marvellous distinct kinds of living creatures, various in their fringing, encrease and strength. Wherein the immense goodneffe of God, the great Architect and framer of all things, doth most clearly appeare towards man, as who hath subjected to our government, as a patrimony, to ample and plentiful provision of nature for our delight in nourishment, and necessity of healing. Therefore the ancient Philistians have rightly delivered, that all sorts of medicines may bee abundantly had from living creatures, plants, the earth, water and aire.

Medicines are taken from living creatures either whole and entire, or else the parts and excrescences of them. Wee oft times use in Phisick whole creatures, as foxes, whelps, hedge-hogs, frogs, snakes, worms, crabbes, and other living creatures. We also make use of some parts of them, as the liver of a Wolfe or goat, the lungs
lungs of the foxe, the bone of the flagges heart, *Craniwm humanum*, fat, blood, flesh, marrow, the cods of the *Cafior* or Beaver, which is therefore termed *Cafiorum*, and such other particles that are usefull in Physicke. We know also that there are some medicines taken from excrements, as horns, nailes, hairres, feathers, skin; as also from urine, dung, fpittle, hony, egges, waxe, milke, woolle, sweat, and others of this kinde, under which we may comprehend cive, pearle, *aphus*, and hangry others of this nature.

Wee take medicines from plants, both whole, and also from their parts, whether trees, threbs, or herbes. For we of times use succory, marfh-mallowes, mallowes, plantaine, and the like, whole: but otherwhiles onlye the roots of plants, their pitch, wood, barke, fruits, stalkes, leaves, flowers, seeds, fruits, juices, gums, roines, moilles, and the like.

Things taken from the earth for the ufe and matter of medicine, are either earths, what from the stones, or minerals. The sorts of earth are *Bole armenick*, *Terra figillata*, fuller earth, earth, chalke, potters clay, and fuch like. Stones are the punice, Marchifite of gold, filver, braffe, marble, the load-tone, plaifter, chalke, *Sulfur vaccum*, *Lapis speculatius*, and others. Metals and minerals are gold, filver, tinne, lead, braffe, iron, steel, antimony, ceruife, brimftone, cinnaber, litcharge of gold and filver, rutty, true *Pompholis*, verdigrreece, alune, romanee vitrioll, coprofe white and greene, fals of many kinds, both the Arfeniekes, and fuch like.

The following medicines are from freth water, raile water, spring water, river water, all things thence arifing, as water lente, common flagges, water lillies, watermints, and all the creatures that live therein. From the falt water are taken falt, *Alcacinum*, all forts of corall, fheles of fish, as also buffe bones, fponges, and all creatures of the fca. From waters mixte of falt and freth, the herbe *Andrafoce* (which grows in plenty in the marifhes at *Fontignan* and *Cape de Sett*) *Albifallum*, which is found in the dead fca.

From the aire proceeds *Manna*, therefore called *melarion* (i.e.) hony of the aire, what from the aire and also all other kinde of dew that are usefull in Physicke by reafon of the vertues aire they receive from the fume which raifeth them up, from the aire, whereas they make some ftey, as also from the plants, whereupon they fall and refide.

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**CHAP. III.**

The differences of simples in their qualities and effects.

All the mentioned sorts of simples are endued with one or more of the foure faculties, whereof I now purpole to treat.

The foure faculties common to all the rest, and as it were their foundation, flowes from the foure foure qualities of the prime bodies or elements, that is, heat, coldneffe, dryneffe, and moisture, and this either simple or compound, as one or two of these prime qualities exceed in the temper of the medicine, as it may appeare by the following tables.

- **Heat**
- **Coolc**
- **Humed**
- **Dry**

**The simple quality**
- *Heat*, *Coolc*, *Humed*, *Dry*.
- Heats and dries,
- Heats and moiftens,
- Coolcs and dries,
- Coolcs & moiftens.

**The compound arising from two joyned qualities, either**

Heats, 
Attenuates, 
Rarifies, 
Opens the passages, 
Digefts, 
Suppurates.

Heat, which is 

Immoderate, 
Inflames and burns, 
Bites, whence follows

Violent attraction, 
Rubrification, 
Consumption, 
Colligation, 
An ecal, 
Mortification.

Cold, which is 

Moderate, 
Cooleth, 
Condenseth, 
Obstructeth.

Immoderate, 
Congeales, 
Stupfyteth, 
Mortifyeth.

Humefts, 
Lubricates, 
Levigates and mitigates, 
Glues.

Moisture, which is 

Moderate, 
Obstructs, 
Lifts up into a flatulent tumour, especially if it be a vaporous humidity.

Immoderate, 
Dryes, 
Rarifyes, 
Attenuates.

Dryness, which is 

Moderate, 
Binds, 
Contracts or shrinks,

Immoderate, 
Dauiths and chops; 

Caufeth chops and caules.

The effects of these qualities are distinguished, and as Galen observes, digested into these orders, which wee term Degrees; so that by a certain proportion and measure, they may serve to oppose diseases, as the same Galen affirms. For to a disease (for example) hot in the second degree, no other medicine must be used than that which is cold in the like degree: Wherefore all simple medicines are,

Hot, 
Cold,
Moist, 
Dry,

Beginning, 
Middle, 
Extreme;

first, 
second, 
third, 
fourth;

of the,

first, 
second, 
third, 
fourth;

degree.

degree.

degree.

degree.

Heat, 
Coldness, 
Moistness, 
Dryness;

first, 
second, 
third, 
fourth;

Obscure, 
Manifest, 
Vehement, 
Excessive.

Examples of heat distinguished thus by degrees, may bee thus, Warne water is temperate; that which is a little hotter, is in the first degree of heat; if manifestly hot, it is in the second degree; but if it heat more vehemently, it may be thought to come
come to the third; but if it scald, then we know that it hath arrived to the fourth degree of heat. Such also is the distinction of coldness, moisture, and dryness, by their degrees. Wherefore it will be worth our labour, to give you examples of certain medicines, distinguished in their order and degree, by which you may the more easily give conjecture of the rest.

Simple Medicines hot in the

First degree.
Absinthium.  
Althae.  
Amygdala dulcis.  
Beta.  
Braëica.  
Chamomelum.  
Ladanum.  
Semen Linii.  
Saccharum.  

Second degree.
Ammoniacum.  
Artemisia.  
Arctium.  
Foeniculum.  
Mentha.  
Salvia.  
Marrubium.  
Melissa.  

Third degree.

First degree.

Simples hot in the

Second degree.

Third degree.

Fourth degree.

Simple Medicines cold in the

First degree.

Second degree.

Third degree.

Fourth degree.

Simples hot in the

Second degree.

Third degree.

Fourth degree.

First degree.

Second degree.

Third degree.

Fourth degree.
### Simple Medicines, and their Use

**Third degree.**
- Portulaca.
- Semperivivum.
- Mandragora.

**Fourth degree.**
- Opium.

**Simples moist in the**

**First degree.**
- Buglossum.
- Viola.
- Malva.
- Rumex.
- Spinacia.

**Second degree.**
- Ammoniacum.
- Lacuna.
- Cucurbita.
- Cucumis.
- Melones.
- Portulaca.

**Simples dry in the**

**First degree.**
- Thus.
- Chamamelum.
- Brassica.
- Sarcocolla.
- Crocus.
- Faba.
- Fanugracum.
- Hordeum integrum.

**Second degree.**
- Artemisia.
- Orbea.
- Balanisia.
- Lens.
- Mafische.
- Mel.
- Anthum.
- Myrrha.

**Third degree.**
- Abrutonum usum.
- Alphitium. Myrtus.
- Aetum. Aloe.
- Mtilum. Cuminum.
- Sanguis draconis.
- Galla. Sabin.

**Fourth degree.**
- Piper.
- Allium.
- Nephurium. Sinapi.
- Euphorbium.

The effects of the first qualities by accident.

Those we have mentioned have of themselves and their own nature all such qualities, yet doe they produce farre other effects by accident, and besides their own nature in our bodies, by reason of which they are termed accidental causes. This shall be made manifest by the following examples.

Externall heat by accident refrigerates the body within, because it opens the passages and pores, and calts forth the internall heat, together with the spirits and humours by sweats: whence it followes, that the digestion is worse, and the appetite is diminished. The fame encompasing heat also humets by accident, whilest it diffuseth the humours concrete with cold: for thus Venery is thought to humet.

The like may be said of Cold, for that it heats not by its proper and native, but by an adventitious force: whereof you may make tryall in Winter, when the ambient cold, by futting the pores of the body, hinders the breathing forth and dissipation of the native heat. Whence it is inwardly doubled, and the concosition better performed, and the appetite strengthened. This same cold also dries by accident, when as it by accident repercusseth the humour that was ready to flow down into any part, and whilest it concretes that which is gathered in the part: for thuses by the immoderate use of repercussers, an oedematous tumour, proceeding from gross and viscid phlegm, degenerates into a fiirrus.

Drinell and moisture, because they are more passive qualities, shew their effects by nor to manifest operations, as heat and cold doe; but in comparison of them they are rather to be judged as matter or a subject.
Of simple Medicines, and their Use.

Chap. IV.

Of the second faculties of Medicines.

We term those the second faculties of Medicines, which have dependance upon the first, which are formerly mentioned, as it is the part of Rarifying, Attracting, Levigating, and Cleanse. Of Heat to Condense, Repercuss, Shut up, Infracate, Exasperate, and Conspirate.

Of Moisiture to Condeuce, Recreuffe, Soften, Relaxe.

Of Cold to Harden, Stiffen.

Hence we term that an attractive medicine, which hath an attractive faculty, as on the contrary, that a repercussive, that repels, a detergent, that which cleans fensitive matter. We call that an Emplastic medicine, which not only shut up the pores of the body, but reduces the liquid bodies therein contained to a certain equality of substance. Thus also emollients, relaxers, and the rest, have their denominations from their effects, as we shall declare hereafter.

Chap. V.

Of the third faculties of Medicines.

The third faculty of medicines depends for the most part upon the first and second faculties, sometimes conjointly, otherwhiles separate. Also sometimes it follows neither of these faculties, but a certaine property and inexplicable quality, which is only knowne by experience. Now the operations of this third faculty are to agglutinate, to fill with fleithe, to cicatrize, to affwage paine, to move or stay the urine, milk, seed, the courses, sweats, vomits, and performe such like operations in or about the body.

Thus the generation of fleithe is produced by the concourse of two faculties, that is, of drying and cleansing. But driness and afftrication produce a glutinating and cicatrizing faculty. A hot and attenuating faculty causeth sweats, moves urine, the courses, and the like in the body; but contrary faculties retard and stop the same.

To mitigate paine, proceeds only from the first faculty, to wit, from heate, or a moderately heating faculty, to procure rest, from cold only, or coolness joyned with some moisture. But to procure vomit, proceeds neither from the first nor second faculty, but from a certaine occult and essentiall property, which is naturally implanted in Agaricke, and other nauseous and vomitory medicines.

Chap. VI.

Of the fourth faculty of Medicines.

The fourth faculty of medicines is not of the same condition with those that are formerly mentioned; for it depends not upon them, or any other manifest or elementary quality, but on an occult property of the whole substance, by means whereof, it workes rather upon this than that part, upon this rather than that humour. Wherefore Physicians cannot by any reason finde out this faculty, but only by experience, as we have said a little before of medicines.
Of Simple Medicines, and their Use.

of medicines procuring vomit. Hence it is, that names are given to those medicines from those parts that they chiefly respect: For they are termed Cephalicks, which respect the head, as Betony, Marjeryme, Sage, Rosemary, Starch: Pneumonicks, which respect the Lungs, as Liquorice, sweet Almonds, Orris, Elecampane. Cordials, that strengthen the heart, as Saffron, Cinnamon, Citrons; but chiefly their rindes, Bugloss, Corall, Ivory. Stomaticall, which respect the stomacke, and the orifice thereof, as Nutmegs, Mint, Anife, Mastick, Pepper, Ginger. Hepatics, which respect the Liver, as Wormwood, Agrimony, Spikenard, Succony, Sanders. Spleniticks, which have relation to the spleene, as Time, Epithymum, Broome flowers, Cetrach, Capers, the barke of their roots, the barke of Tamariske. Diureticks, such as respect the kidneys and ureinary passages, as the rootes of Smallage, Asperagus, Fennell, Butchers brome, the foure greater cold feeds, Turpentine, Plantaine, Saxifrage, Arctiticks, or such as strengthen the joynts, as Cowflips, Chamomile, Elecampane, Calaminte, Hermodactyles, and the like.

To this ranke may be referred purging medicines, which, furnished with a specificke property, shew their efficacy on one humour more than another humour, and that impact more in one part than in another. For thus Agricke chiefly drawes phlegm from the head and joynts, Rubarbe drawes choller chiefly from the Liver, and hurts the kidneies. But let us here forbear the consideration of such things, as not appertaining to Surgery. But some medicines of this kinde are furnished with one ample faculty, other some with more, and those contrary, whereof your taste may give you sufficient notice: for Rubarbe at the first touch of the tongue is found acride and hot; but when you come to chaw and throughly to taste it, you shall find it to partake of an earthy affliction. Therefore because tastes give notice of the faculties of medicines, therefore I have thought good to treat of them briefly.

Ch. VII.

Of Tastes.

After Galen delivers according to Aristotle and Theophrastus, is a certaine concoction of moisture in drincke, caufed by meanes of heat, which we know or discerne by the tongue well tempered, and fittingly furnished with spittke and his nerves. There are nine differences of tastes; for there are three judged hot, to wit, the acride, bitter, and salt: three cold, the acide, auster and aperbe: threecempcrate, these sweet, the oily or fat, and the insipide. Now they are thought so many, according to the different degrees of concoction; for it appears greater in hot tastes, and as it were a certaine aflation, but lefse in cold, but indifferent, and as it were an elixion in things temperate: therefore Nature observes this order in the concoction of fapide bodys, that at the first the aperbe taste should take place, then the auster, and lastly, the acide; from these (as it were) rudiments of concoction, arifes an insipide, then an oily, then a sweet perfectly concocted and temperate. This concoction exceeding the bounds of mediocrity, there arifes a salt taste, then a bitter, and then an acide with the highest excess, of almost a fiery heat. Yet I would be thus understood, that all things that are by nature fapide, do not alwayes ascend to the height of sweetness by the degrees of acerbity, austerity, and acidity, as though it were of absolute necessity, that all things that are fweete, they should first bee acerbe, auster, and acide. For there are many things found, especially in plants and their fruits, which when they shall arrive to their perfection and maturity, are acide, bitter, or salt, but being yet unripe, and not come to full perfection, they have a certaine sweetness, which afterwards, by a further digestion, or perfection and concoction, acquire a bitter, auster, or acide taste. For thus bitterness in Wormwood and Aloes, acrimony in Pepper or Pellitory, is a perfection of nature, a full ripeness and perfect concoction; and not an excess of heat in that species. Also aperbity and austerity is a perfection of nature, and not a rudiment
rudiment in Services and Cornelians, acidity or tarmcfie is also in verjuice. But in very many things it so falls out, that the sweet or fatty taste become, and acquire their perfection by concoction, as in Grapes, Figgges, Peares, Apples, and almost all other such fruits, as we usually feed upon. Therefore will now treat of each of them in order, first beginning with the cold tafes.

The acerbe tafte is cold and terreftriall, and of a substance absolutely groffe, being leffe humidie than the aiftere, but much leffe than the acide. It notably cooles and dries, it condencats, binds, repels, especially from the superficies, and it also exasperates; this tafte refides, and may be found in Pomegranate pils, Galls, Sumach, and Cypreffe nuts.

The aiftere is nighted in temper and effects to the acerbe, but somewhat moifture; for the aiftere absolutely consists in a terreffe and cold substance. Wherefore this, increaced by a degree of concoction, acquires more store of heate alone, or of moifture alone, or of both together: moifture, I fay, and that is either apery, or elie watry. Therefore if these fruits, which before their maturity are acerbe, have an accesion of heate, then doe they become sweet, as you perceive by Chefnuts; but if there be an accesion of moifture only, and that more groffe, of acerbe they become aifteres: for both the tafes are in the like degree of cold, but the aiftere is the moifture. But if to the fame frigidity remaining in fruits, a certain subtill humidity accrew, then is there caufed an acide tafte. But if they have an accesion of a watry moifture and heate, they will acquire a sweet tafte, or else oily, if the humidity accrewing with the heate be apery.

I have judged it requisite to admonifli you hereof, that you might know by what meanes fapidc bodies mitigated become sweet of acerbe, as it were by these interposed degrees of aifterity, acidity, and olineffe, as they acquire a various accesion of heate and moifture separately, or conjuntly.

Now by all that we have delivered, you may gather, that all acerbe and aiftere things are cold and dry; and as they are cold, they repell and hinder defluxions; as they are dry and terreftriall, they condenfate, increaffe, confipate, and ftrahen the passages, and they alfo cicatrize: but acerbe things performe this farre more powerfully, as thofe which are abfolutely terreffe, cold, and dry, not partaking of moifture, or water. Now aiftere things confift (as it were) in a middle matter, that is, in a more dilute terreffe body, as it is apparent in Services, unripe Grapes, Cornelians, Medlars, Crabs, wilde Peares, and all forts of unripe fruits, whence it is termed a crude tafte.

The acide tafte is of a cold and watrith nature, but moft subtill, by benefit whereof it penetrates, and divides almost as powerfully as the acride. It incides, or divides, attenuates, bites, cleanses, opens obftructions, repels and dryes. For by the meanes of the deep piercing cold, it repels all defluxions; and by the drying faculty, which is ftrong even in its watry confiftency, it ftrays and stops all bleedings, the hemorhoides and dyfenteries. The force thereof is chiefly manifeft in Vinegatjas, also in the juice of Citrons, Sorrell, Cherries, Berberries, and the like. And this is the nature of cold tafes, now it is time we fpeake of fuch as are temperate.

The insipide is unproperly termed a tafte, as that which is rather a privation of the acide tafte, it is in some fort cold, and of a very watrith and groffe nature, it insipilates, confipitates, and fputifies. This kinde of tafte is chiefly manifeft in water, and next in Gours, Citruls, and many fuch like things.

The oily tafte is hot, humide, and apery; therefore it humecfs, relaxates, mollifies, lubricates. Of this kinde are oyle, butter, fat which is not raucidc by age, nor acride by nature, as that of Lyons and Foxes.

The sweet tafte is made by a moderate and well concocting heate, confifting in a matter more tenious and hot than the insipide, but in somewhat more groffe than the oily, from which in the firft qualities it doth not differ; therefore it is of a hot, apery, and temperate nature. Therefore every sweet thing detergeth, levigates, confipates, ripens, relaxes, and alfwageth paine. Examples of this tafte may be had in Sugar, Honey, Manna, sweet Almonds, Milk, and other like. Now let us come to hot tafes.
The taste is hot and astringent, iftfe earthy than the bitter, as that which re- 
fides as it were in a middle matter. For it proceeds from an earthy drineflc, which is 
formerly torrified & attenuated by the force of heat in a watry humidity. Where- 
fore that which is salt contraftis the pores, cuts, cleanes, digests, or rather dryes up 
the humours by the drineffe thereof, without any manifest taffe of heat, whence it 
is, that it vindicates from putrefadion. Under this kinde are contained all forts of 
salt, as salt-Peter, siter fal Ammoniacum, sal gemma,common salt,sea-water, and such 
other like.

The bitter.

The bitter taffe is hot, earthy, and drying, for the matter thereof is groffe and 
earthly, which the abounding heate hath torrified and dried up. Wherefore bitter 
things taken inwardly, purge and carry away superfluous humours : and outwardly 
applyed, they mundifie and dergere ulcers, they open the mouthes and pafifages 
of the veines oft-times by their abftergent faculty, whence it is that they move the 
courses and hemorrhoides. The principall things indued with this taffe are A-
loces, Gall, Wormwood, Gentian, the lefler Centaury, Coloquintida, Fumitory, 
Soot, and fuch like.

The acride taffe is hot, of a fubtle and fiery nature; for it is kindled of a hot, fub-
tle, and dry matter, neither can it confift in any other. Therefore that which is acride, 
heats prickes or bites the mouth by the acrimony, it heates, and oft-times burses, it 
penerates, opens the pafifages, attenuates, attracts and draws forth groffe humours, 
evacuates and lends forth urine, the courfes, and sweat: besides it oft-times is fep-
ticke, bliffting, and efcharoticke ; and laftly, burning, and caufticke. The fepticke & 
purefaive things are sublimate,Chamartes, the juice of Thaspia. The velificatories are 
Dittander, Cantharides, Crowfoot, Mustard, Pellitory of Spaine, Eupherhum. But 
the caufticke and efcharoticke are Lime, Oake afhe, and the like.

But wee know medicines not onely by the taffe, but alfo by our other fenses, as 
touch, fight, hearing, flmell. And as by the taffe, fo alfo by thefe we judge if and try 
the goodneffe of medicines, and diftinguifh the true legitimate from the adulterate. 
The touch judges what are hot and cold, moift and dry, rough and gentle, or smooth, 
hard and loft, brittle or friable, glutinous and viscide, dry or flippery. We approve 
of the goodneffe of medicines by their colour, brightneffe, or dusrineffe, whereof 
the eye is judge; for wee commend that Senna which is fomewhat grceenifli, but 
diflike the whitifli: as alfo we like well of fuch Caffia as is blacke both within and 
without, fliniling and full, and not dry and flrunke up. Yet the judgement of the firft 
qualities, by the colour is deceitfull, or none at all; for fuch things as are white, or 
of the colour of Snow, are not therefore cold : for fumny of them are hot, as Lime. 
Neither are red things to be therefore judged hot ; for Rofes coolc. Alfo medicines 
are choien by the fmmell; for fuch as have a good, frefh, and naturall fmmell, are com-
monly hot, and in their perfec vigour. On the contrary, things that want fmmell are 
for the moft part cold and evanide. By hearing we diftinguiffh things full from fuch 
as are empty; thus we choife Caffia, which faken, makes no noyfe with the grains 
or seeds ratling in it. Hitherto we have explained the firft, fecond, third, and fourth 
faculties of medicines in gencrall, & have difcovered how they may be found out : now 
mult we more particularly treat of their fecond and third faculties, because by rea-
fon of thefe they chiefly come into ufe in Surgery: Yet let mee briefly shew by 
what means and arts they may be prepared.
More gentle.

To prepare medicines, is nothing else, than by art to make them more commodious for use and consumption, whereby they are either made more strong, or more pleasant.

By bruising, as when medicines are broke by striking and rubbing or grinding in a mortar, &c., the thing which is to be beaten.

The strength or force whereby it must be performed.

The time or place.

The situation.

The things to be added.

The confidence which the thing beaten must be of.

More frant.

By fearfing, whereby we separate the pure and finer from the more impure and gross, which is done by fives and fearfes, made of Wood, Parchment, Hair, Silk, Lawne, which is nothing else but a disfolution of either by heat only, or by boiling, as of a simple or compound medicine, or of thick or hard consistence, either into a mean consistence by liquor, as by vinegar, or a little more liquid or soft, which is performed by Leamons, &c.

Nutrition may be reduced, which is nothing else, but as it were a certain accretion of the medicine, by being moistened, macerated, rubbed, or ground with some moisture, especially heat.

By washing or cleansing, whereby the impurity of the medicine is wasted away or cleaned, and such things are either made more fit for mixture.

Hard, as metals, stones, parts of living creatures, condensed juices, &c., & other like.

Or fods, as Rosines, Guns, Fats, Oyles.

To be finely beaten, that the water may penetrate into all their substance, &c.

To be dissolved, &c., &c.

To be circled, &c., &c.

To be dried, &c., &c.

To be salts, &c., &c.

By infusion, which is nothing else but the tempering or macerating of a medicine a little beaten or cut, in some liquor appropriate and fit for our purpose, as in Milk, Vinegar, Water, Oyle, and the like, fo long as the nature of the medicine requires.

By infusion, which is nothing else but the infusing of the medicine, by being moistened, macerated, rubbed, or ground with some moisture, especially heat.

By fomming, which is by confuming the immortality, &c., such things are either made more strong, or else to weaken such as are too strong, or else wholly to dissipate such as are contrary: Or that one faculty may arise of sundry things of different faculties being boiled together, or for the longer keeping them, or bringing them to a certain form or consistence: All which are done, either by the Fire, or Sun.

More whole-fome.

All which are performed, either by the Sun, or by Fire.

More fit for mixture.

To be finely beaten, that the water may penetrate into all their substance, &c.

To be dissolved, &c., &c.

To be circled, &c., &c.

To be dried, &c., &c.

To be salts, &c., &c.

By washing or cleansing, whereby the impurity of the medicine is wasted away or cleaned, and such things are either made more fit for mixture.
Repelling or repercussive medicines are cold, and of gross and earthy parts; by which name also astringent medicines are understood, because they hinder the falling down of the humors upon the part. Repellents are such, either of their nature and of themselves, or else by accident, being not such of their own nature. These which of themselves are such, are of two kinds; for some are watry & moist, without any astringent faculty, which almost wholly proceeds from an earthy essence; wherefore that faculty of repelling which they possesse, they have it wholly from coldness. Of this kind are lettuce, purslane, sow-thistle, dandelions, all unripe fruits, verjuice, vinegar, red wine, the juice or lower pomegranats, the juice of barberries, and quinces, hyssopus, pomegranate pills, oake bark, the flowers of Wilde pomegranates, the meal of barly, beanes, panicke, oaks, millet, or such mixed with juices in forme of saltis, bolearmenick, hyssop, salis, all sorts of earth, and other things of the like nature.

Why things of subtile parts are eate times mixed with repercussive.

Repellent by accident.

When, and to what parts repercussives must be applied.

Of repelling, or repercussive medicines.

Astringent are underftood by the name of repellers.

The differences of repercussives.

Repellent medicines, or repellers, are cold, and of gross and earthy parts; by which name also astringent medicines are understood, because they hinder the falling down of the humors upon the part. Repellents are such, either of their nature and of themselves, or else by accident, being not such of their own nature. These which of themselves are such, are of two kinds; for some are watry & moist, without any astringent faculty, which almost wholly proceeds from an earthy essence; wherefore that faculty of repelling which they possess, they have it wholly from coldness. Of this kind are lettuce, purslane, sow-thistle, dandelions, all unripe fruits, verjuice, vinegar, red wine, the juice or lower pomegranats, the juice of barberries, and quinces, hyssopus, pomegranate pills, oak bark, the flowers of Wilde pomegranates, the meal of barley, beanes, panicke, oaks, millet, or such mixed with juices in form of saltis, bolearmenick, hyssop, salis, all sorts of earth, and other things of the like nature.

Now compound things are oculus roscaccium, emphacium, mirtillores, papaveris, cedoniorum, nemaphor, augenemium refatium, album bha, camphoratun, emplastrum dicalcalis, dissolvd in vinegar and oil of rotes, deficcacium subram, populoen, emplastrum nigrum cunctorepharmacnum of Galen description, empl. contra rapturam, de ceruse pro matrice. All such cold repercussives are more effectual if they be associated with tenueity of substance, either by themselves, or by mixture with some other things; for to this purpose we often mixe vinegar, camphire, and the like things of subtile parts, with repercussive of gross parts, that they may serve as vehicles to carry in the repercussive faculty. Recapitulative of gross parts and hot, are wormwood, centory, gentian, agrimony, savin, coriander, mint, bay leaves, cardamomes, gallicum aromaticus, aloes, spikenard, saffron, nutmeg, cinnamon, amber, salt, alone, copriscum, sulphur, oculus solstitium, mastichicum, nardum, esphium, ceratun, Gal. fsmanesium, santalmum, emplastrum dicalcalis. But such things as repel by accident, are bandages, comprefles, linen cloaths, and rowlers of all sorts, cases, caureties, blood-letting, cupping, painefull frictions in the opposite parts, and other such like things as are properly said to make evulsion. The use of repercussives is to force backe the humour which flows from any other place into the part, and thus they mitigate the heat of such inflammation as that fluxion of humors hath caused, yea oft times to allvage and helpe paine, the feaver, absesse, maligne ulcers, and mortification. Such repercussives must alwayes bee fo opposed to the diseafe, that respect may bee had to the temper, complection, and particular nature of the part whereunto they are applied; for all parts cannot equally bear the like force of repercussives, as nervous & other spermatick and cold parts. Furthermore, there are some parts whereunto we may by no means apply repercussives, as the groines, arme-pits, and those glandoles or kernells which are behind the eares and braine, lest the humour should retire backe into some of the principal parts: the like reason is also of bodies, for the bodies of women, children, eunuches cannot endure so strong repercussives and the like excelse of cold as manly and vigorous bodies may. Besides, every diseafe requires not repercussives, for if the body bee replen with ill humours, if it bee plethoric...
Chap. X.

Of attractive medicines.

An attractive medicine is contrary to the repeller; the Greeks call it Helæ. What an attrac-

tive medicine

it is of a hot and thin substance, whereby it draweth forth into the surf-
pertics of the body that which lieth hid in the center, although some-
times it doth it by an occult quality; other whiles also by accident, as by the ac-

romony. Those things which by a manifest quality do attract, are either sim-

ple or compound.

The simple are Bryonia, alium, capsa, porrum, arasbalochia, hermodactyls, ciclamen.

Attracivesby

Litum, picrodium beatum, maria, arun, asfarum, aphodius, gentiana, pyrethrum, ruta, sa-

bina, cal cementum, omnes tisbymalorum species, viscum, abrotanum, anagallis, urtica, ra-

unculus, fructium, and such like: ammoniacum, batillium, gabanum, figopentum, eu-

phorium, asphalum, crine faci. visi vel aceri, calx vivas, sulphur, sal ammoniacus,

omnes fals species, auripigmentum, viscum voces, adapes leonis, arsi, canis, asfarsis, oife-

ra, ranarum, axungia porci vestigia acris, aut atritum. composta viro, uro-

lem de pisco, philosphorum, de trebihoura, de croco, de scorpiobius, rutanum, vulpi-

num, laurium, anethium, de vivriola, aquamentum Agrippa, aragon, seu auxiliare, mar-

vium, enulatum, thorica, mithridatium, empl. de meliloto, diactylum magnum & par-

vum, oxycroctum, divinum.

Those things which draw by a secret properity in nature, as are the load-stone, quick-silver, pyony, amber, all antidotes and treacles that are remedies against the bitings of venemous beasts, and all purging medicines.

These which draw by accident, performe it otherwise than of their owne na-

ture, they have that quality out of putrefaction and corruption, as doves dung, goats
dung, cow dung, mans dung, and all kinde of dungs: also leaven, old cheefe, and such like.

Cupping glaflcs, leaches, syrenes, rougher and harder fricctions, fucking, paine,

straight ligations, cauteries doe also draw, but after a different manner from them

spoken of before.

Attractive medicaments must neither burne nor discusse, and being very strong

and sharp, they should bee tempered and mixed with oyle of rofes, and other le-

nives: but to weake ones should be added oyle of bayes, calx vivas, and such like to

strengthen them. The use of attractives isto draw poyfon toward the skin, & to ha-

fe their use

en forward critical abceffes; and they make those parts which were benumbed and

confumed, to have life, they restore the refrigerated parts by drawing thither the spi-

ritis; they draw forth the vicious filth of maligne ulcers that lies hid in the nerves,

and hollow passages of them; they also draw out scales of bones, splinters of wood,

nailes, thornes, arrowes, and that matter which is impact in hardened inflammati-

ons.
What is a resolving medicine, which by heat, and the tenacity of its substance openeth the pores, attenuates the humours, dissipates and dissipateth by evaporating the unprofitable matter. There are two sorts of these kinds of medicines, the one is called Aromaticum or digerating, the other is termed Diaphoreticum or digetting.

The Aromaticum by a mean heat, and not dry, and ended with a tenacity of substance, openeth and relaxeth the skin, and draweth forth the matter under it, whereby it may ease paine, like as Anodines, because it doth not much depart from a temperate heat.

But the Diaphoreticum being much hotter, whatsoever flicketh in the part being there impact, doth it by thin vapour insensibly dissipate: therefore the acrid and hot things are in this caufe to be made use of rather than attractives, because that cold and groffenesse is more difficultly to be digested, and the length and involution of the waies being to be considered. The Aroucick, which we may call weak refolvers, are either simple or compound.

The simples are thek, beforsettos, pariza, adiantum, mercurialis, chelid, valeriana, rosinmarinus, sabota, thymus, camomelium, melilotum, fuxa, hordec, tritici, feminus lur, f/angularis, nigella, furfur, adeps gadina, uferi, uatic, cannula, eulali: almost all metals unlesse such as are acrid. The compounds are oleum chamomelium, virginum, lithae, catelorum, huncoricorum, urina, de vitellio, mum, de trito, amygdalarum dulcitum, alucomentum de althea, empl. diachylum, iureatum. Diaphoreticke or digestives, are almost both simple and compound: the simples are Aristocho, embola pampina, iris, caps, fylla, figillum Salemonis, figillum beate Maria, bryonia, pannis porcius, dracunculus, aphidius, origanum, mentha, pulegium, sabina, ferphelium, galamendia, bispess, artica, artemisia, levandula, champignon, anisum, fumculum, cumuminum, pipe, nux moschata, curianiform, hance lauri & juniper, farina faberorum, lupinorum, orbi, melis, frumenti, furfur, mica panis, acetum tepidum, oxycuratum, ximeni, ratis or aromaticum, mel, aqua vita, martis, adeps tauri, aqua, leonis, canis, birel, medolla, cer, cruri, bovis & ardeis, ammoniacum, galbanum, opopanax, sagapenum, myrrha, bultinum, bus, terrinthisma, pice niger, ladawum, bryxas, calamita, bensoinum, færens capitum, columnarium, canuminum, bulbulum, & alie fercoreum species.

Compound diaphoreticke are oleum amygdalarum amoratum, juniperorum, virgini, de scorpiobus, lirintonum, de scorpiobus, liritonum, sarcinum, stagnum, de terrinthisma, de croco, canum, raphanum, de cucmere agrelli, vulpinum, rutacemum, phileptheron de laterebus, de euphorbio, de tarato, de petrolo, de kerov, ferievicium, unguent. Agrapio, arom, martiasm, emulatum, empl. de fume, without addition, and with addition, oxycrocodium, dicallitsebro, dissolved in a digesting oyle to the forme of a curat.

Aroscick are profitably used in the increace and flate of superficial tumours. But Diaphoreticke are not to bee used in the encreace of tumours, unlesse some aromatick be added, left by their more strong digestion, they should draw and increace the defluxion: but when the tumours decline, they are then only to bee used in the parts chiefly where the skin is dense and hard, and when the humour is cold and groffe, and lying hid deep in the body, so that the vertue of medicaments can hardly come thereto: but consideration is to bee had of the parts to which resolutes are to be applied; for you may not apply relaxers or diaphoretickes to the liver, spleen, stomake, or bowels, unlesse you adde some astringent, of which a great part must be aromatick.

To the parts where fene is more dull, may be applied the stronger diaphoretickes, but those parts which are ended with a more expirite sene, as the eye, and the nerves, to them we must apply weaker. When the matter is groffe and cold, things cutting and attenuating, and then emollients are to be used, and fo by degrees come to diaphoretickes; otherwithe that onely is resolved which is the most subtle of the unprofit-
unprofitable matter, the grocer becoming concrete and hardened. But if the part be afflicted with a continual fluxion, so that there may be danger of a gangrene or fistula, it is not lawful then to make use of resolvers, but you must in the place where the humour fluxes, devise the skin by scarification, as it is most learnedly noted by Hollerius in that profitable booke of his left to posterity, whose title is, De materia Chirurgica.

CHAP. XII.

Of suppuratives.

Suppurative medicine is said to bee that, which shutteth the pores, and preventing tranpiration by his emplastic consistence, increaseth the matter of native heat, and therefore turneth the matter cast out of the vessels into pus and fancies. It is of nature hot and moist, and proportionable to the native heat of the part to which it is applied, and of an emplastic consistence, so that it may hinder the native heat from being exhaled; in which respect it differeth from emollients and malaeticks, of which we shall speake hereafter. There bee two kindes of suppuratives, for some doe it of themselves, and by their proper qualitie; others by accident. Tho' things which by their owne strengthe do bring to suppurate, are either simples or compounds.

Simples are radix liliorum, caps. allium, malvarum, omum, semina, acanthus, senecio, viola, parietaria, crocus, caules, siccus, posflume munda, with a decoction of these things, farma tritict, farina volatilis, farina hordei decorticati, lait, seminis linii, fum, aesculus, galbanum, ammoniacum, pungens, ladanum, olibanum, anethum, thum, picis, aqua, ads, suillus, ocula, maccinus, caprinus, butyrum, vestites, oilis, oijum homida, fercus suillum, columnbam, caprinum, puris.

Compounds are oleum liliorum, laurum, decroco, Unguent. basilictint, emplast, diachylon commune, magnum, de mucilaginis.

Tho' things doe suppurate by accident which worke it onely by the meanes of an emplastic consistence: for fo often times astringents, because they are of earthy and thicke parts, are found to suppurate, such are augmentum de bolo nutriment, and such like. Such also are tho' which by their coldness keep the heat in, and shut the pores. Hence is it that the qualities of forreall are commended to generate pus: for whilst it keepest the heat within, it increaseth his effects, to the thickening of the suppurable matter and the overcoming other rebellious qualities. We use things ripening in great inflammations, whose growth we cannot hinder with repellers, or increase with resolvers or difcussers.

CHAP. XIII.

Of mollifjing things.

What is defined to bee a mollifjing medicine, which by a stronger heat than that which is proper to suppuratives, without any manifest quality of dryness or moistness, again maketh or softenneth hardned bodies: where for this differs from that which suppurates, because that may bee hot in the firft or second degree, according to the severall temper of the body, or parts to which it is applied, working rather by the quantity of heat than the quality: contrariwise, that which mollifieuth being endued with a greater heat, rather worketh by the quality of the heat, being otherwise in dryness and moisture temperate.

Although as many things agree together in some respects, though of a divers nature; so many emollients are such as are hot in the firft degree, and dry in the second...
and third, that so they may the better diffuse and diffuse that which is congealed, by taking away a little of the humidity, which is contained within the part affected; but not by exhausting it wholly by the violence of heat or drainage: for heron would follow a greater hardness.

Things mollifying, are either simple or compound, and these again strong or weak. The weak are, Radix lilium alborum, cucumis agrestis, althae, folsa malvae, bisnadea, lilium, anthis summittatis, viola, branca urina, semen malvae, bisnadea, lima, sinuagris, carici pinguus, passula mundata, pedum, capitus, intesinorum vesicorum decrepitum, adeps ex junioribus & castratis, domestica, fascinis animalibus, deps suillus, vitellun, bordinus, caprinus, bubulus, vulpinus, gallinaceus, anserinus, anathinus, olorinus, efficaces. The weaker are things more gentle, as, butyrum, lana succidea, ceratina, vitellus ovi, medulla exosibius, cervina, ovella, caprina. The compound are oyle, wherein are boiled mollifying herbes, as, Oleum litorum, chamamelinum, amygdalorum dulcius. Stronger emollients are, acceum, adeps taurinum, urinum, cervinum, leoninus, pardalinus, apris, equisimum, pinae, picae, abietina, terebenthina, ammoniacum, bidentum, strax, galbanum, laudanum, propolis, opopanax, ungu de althae, emp. diachylon commutum & magnun, de mucilaginibus, cervenun, oxyrocinum, foannis de vigo.

We use emollients in scirrhous tumours of the muscles, or in the lips of ulcers, in any of the limbs, belly, glandules, bowels, by reason of a grosse, cold, and viscous matter, either scismaticke, or melancholique. Yet those tumours which come of melancholy, commonly turn to cancers, which are exasperated by mollifying things. On the contrary, such as proceed from a scismaticke matter, are brought to an equality of consistence, by the use of emollients. Furthermore, there are three things observable in the use of emollients: the first is, duly to consider how much the affected part differs from his proper and natural temper and proportion, that so we may apply an equivalent remedy. The second is, that we distinguish the natures of the parts. The third is, that we artificially gather after what manner this mollifying must be performed, that is, whether we should mingle with the emollients, determinate or disfiguring medicines. For there are many desperate scirrhous tumours, that is, such as cannot be overcome by any emollient medicine, as those which are grown so hard, that they have lost their senfe; and thereupon are become smooth and without hairs. Here you must observe, that the part sometimes becomes cold in so great an exceffe, that the native heat plainly appears to languish, so that it cannot adinate any medicine. That this languishing heat may be refuscitated, an iron fwayne shall be set neere to the part, wherein a good thicke piece of iron heated red hot shall be inclosed, for so the fwayne will keep hot a long time.
The figure of an iron stove.

A. The cask of the stove.
B. The iron bar to be heated.
C. The lid to close the stove.

chap. xiv.

of detergives, or mundificatives.

Detergives is defined to be that which doth deters or cleanse an ulcer, and purge forth a double kind of excrement; of the which one is thicker, which is commonly called forde, which is drawne forth from the bottome of the ulcer, by the edificatory quality of the medicine, the other is more thin and watery, which the Greeks call ολοκληρον, the Latines Sanier, which is taken away by the drinke of the medicine; and therefore Hippocrates hath well advised, that every ulcer must be cleansed and dryed.

Of Detergives, some are simple, some compound, some stronger, some weaker. Detergives

The simple are either bitter, sweet, or sour: the bitter are Gentiana, Artemisia, iris, emula, seilla, serpenaria, centaurinum minus, absinthium, marrubium, perforata, abrotanum, apiun, chelidonium, ruta, hyssopus, scabiosa, artemisia, eupatorium, aloe, mus muscosa, hederasterris, a lexivium made with the ashes of these things, lupini, girus, amygda amara, fufa, terebinthina, myrrha, matricaria, sazonum, galbanum, ammoniacum, the gals of Beals, fercus caprinum, urina benecolla, quanum ani, as ustum, arug, scorigeris, ammonium, calx, chalcitis, miss, sory, alumen. The sweet are Viola, ros, melilotum, ficus pingues, dahlia, manna, thus. The sharp are all kindes of sourre things, Curare, vitiium, acetur, and other acide things. The compound are Syrupus de absinthio, de fumaria, de marrubio, de eupatorio, de artemisia, acetur, lexivium, oleum de vitiis oevorum, de terebintina, de tartaro, unguintum mundificativum de apo, opoporum, pulvis mercurialis. We use such things as deterge, that the superfluous matter being taken away, nature may the more conveniently regenerate flesh to fill up the cavity: But in the use of them, consideration is first to bee had of the whole body, whether it be healthy, plethoricke, or ill disposed; there is consideration to be had of the part, which is moister and drier, endued with a more exquisite
1044

or duller fene. But oftentimes accidents befal ulcers besides nature, as a collium, a de-

lusion of a hot or otherwise maligne humour, and the like symptoms. Lastly, confideration is to be had, whether it be a new or invertebrate ulcer, for from hence, ac-

cording to the indication, remedies are appointed different in quantity and quality: fo that oftentimes we are constrained to appoint the bitter remedy in stead of the sweeter. Neither truly with a painfull and dry ulcer doth any other than a liquid de-

terfive agree: neither to the moyft any other than that of a dry confidence, as

Powders.

C H A P. XV.

of Sarcoticks.

Hat medicine is sayd to be farcotick, which by its drinfcffe helps nature to regenerate flefh in an ulcer hollow, & diligently cleans-

ed from all excrements. But this is properly done by blood in-

different in quality and quantity. Wherefore, if we muft speake ac-

cording to the truth of the thing, there is no medicine which can pro-

perly and truly be called farcoticks: For those which vulgar-

ly go under that name, are only accidentally fuch: as those which without biting and erosion do dry up and deters the excrements of an ulcer, which hinder the end-

eavour of nature in generating of fleshe. For as by the law of nature, from that nour-

ishment which flows to the nourifhing of the part, there is a remaine, or a certaine thin excrement, flowing from some other place, called by the Greeks Thbor, and by the Latines Sanics: Thus by the corruption of the part there concretes another grof-

fer excrement, termed Bestor by the Greeks, and Sordes by the Latines. That makes the ulcer more moyft, this more filthy. Hence it is, that every wound which requires restitution of the loft subtance, muft be cured with two forts of medicines, the one to dry up and wafe the superfluous humidity thereof, the other to fetch off the

flesh: and by how much the wound is the deeper, by fo much it requires more li-

quid medicines, that fo they may the more easilie enter into every part thereof.

But diversity of things shall be appointed according to the various temper of the part. For if the affeded part shall be moyft by nature, fuch things shall be chos-

en to be dry; if on the contrary the part be dry, then fuch things shall be ued as be more dry; but many forts of medicines shall be associated with the farcoticks, according to the manifold complication of the affected poffeffing the ulcer. There-

fore nature only is to be accounted the workmafter, and the efficient caufe in the re-

generating of fleshe, and laudable bloud the mattcriall caufe, and the medicine the piping or affisting caufe, or rather the caufe without which it cannot be; as,that by cleaning and moderately drying without any vehement heat, takes away all hin-

drances of incarnation and orders, and fits the bloud to receive the forme of fleshe. This kinde of medicine, according to Galen ought to be dry only in the firft degree, left by too much dineffe, it might drink up the bloud and matter of the future fleshe, which notwithstanding is to be understood of farcoticks, which are to bee applyed to a delicate and temperate body. For if the ulcer be more moyft, or the body more hard than is fir, we may ascend to fuch things as are dry, even in the third degree. And hence it is, that fuch drying medicines may firft be called deterfives, and then presently farcoticks. A farcoticke medicine is either simple or com pound, stronger or weaker. Simple farcotickes medicines arc, Aristolechia utraque, iris, acorus, dra-
cunculus, etram, ismophlytis omenia genera, betonica, sanicula, millefolium, lingua canis, verbena, salvia, pin pasture, hypericin, scordium, plantago, rubia major & minor, co-
rutum, &c. Terebinthus lute & non lute, rcsnapini, ginnu, scaricium, sarcoella, ma-
flabe, colaphosome, marnamu, cortex ejdem, aloe, olehum, myrrha, mel, viscum, favus draconis, thyargyros sur, sidum, pompholix, tutia, plumblum uffium lotum, fo-

terra. The compound farcotickes arc, Oleum hypericonis, olea, uffum, maficbenium, &catera olea, que balsami nomine appellantur, anguncium aureum, emp.de betonica, u.
gens,
gonis, de janna, Emp. gratia Dei, Emp. nigrum. We use not farcoticks before that the ulcer be cleaned and freed from pain, defluxion, inflammation, hardneffe, and diatemper. In using these things we consider the temper of the body, and the afflicted part: For oft-times a part otherwise leffe dry by nature, requires a more powerfull drying medicine, and stronger farcotick, than another part which is more dry, and this for some other reason, which ought to come into our consideration: For example, the glans would be more dried than the prepuce, although the same part is more dry, because it is the passage of the urine. Wherefore we must diligently observe the condition of the afflicted parts, and thence taking indication, make choice of more strong farcoticks. For both that which is too little, and that which is too much farcotick, makes a fordid ulcer: the first, because it dries not sufficiently, the latter, for that by its acrimony it causeth defluxion. Therefore diligent care must bee ufed in the examination hereof.

CHAP. XVI.

Of Epsoticks, or skinning medicines.

N Epsotick medicine is that which covereth the part with skin: it is said to bee such as by drinse and affraction without biting deficcates, bindes, and condenfates the fleshe into a certain callous subftance, like to the skinne, which we commonly call a cicatrize or fcare: yet this, as the generating of fkl, is the worke of nature. A medicine therefore is said to be Epsotick, for that it afflts nature in fubstituting and generating a fcare, in read of the true skinne, while it confines the superficial humblities, condenses, increafes, and binds the next adjacent fleshe; therefore it ought to dry more powerfully than a farcotick. Epsotick medicines are of three kindes: the firft is the true epsotick, which only dries and binds. The fecond is an acride and biting epsotick, which, for that it waftes the proud fleshe, is called fo: and this muft be ufed uonly to hard and rufticke bodies. The third is that which onely dries without affraction. The things whereof they confift are thefe: Arisfolochia utraque, gentiana, iris, centaurium majus, pentaephyllon, symphytum majus, chamadris, betonica, cauda equina, eupatorium, verdencara, plantagenis & symplesti folia, galle, baco, myrti, glandes & earum calices, bulantia, capreft nucis, malcorium, cortex quercus, cortex tamariscis, cortex ĕgni albi, acacia, colophonium, farcocolla, sanguis draconis, ladanum, lithargyros amri, argenti, cerusa, plumum usum, alumen usum, tphis, squamosa aris & ferri, & earum cortis, enoga, flós aris, arisum & iotum, sulphur arsuum, chryscollis, coralis, balsamicus, terra sigillata, cineres buceinarum, iotum, sanguis & ficacis, caries lignorum, ung. dopompholygos, ung. alba basi, deficans usum rubrum, empl. de cerusa, de betonica, diascellitis, emp. nigrum.

We use Epsoticks when as the ulcer is almoft filled up, and equall to the adjacent skinne. In the use of these we muft alfo have regard to the tendernesse and hardneffe of the body; for fuch things as are corrosives to tender and delicate bodies, are epsotick to hard and rufticke bodies. Alfo wee muft have regard, whether the body be plethorick or replete with ill humours, for fuch do not easilie admit cicatrization. Alfo it is moft worthy of your obervation, to marke whether the ulcer that is to be cicatrized, be fed or nourished by the prefent defect of any part, as the liver, spleene, lungs, or a varix lying about it. For it cannot be cicatrized before these impediments (if any fuch be) be taken away. Laftly, the callous lips of an ulcer, unleffe they bee carynifed or foftened, hinder cicatrization. Therefore all fuch defaults must be taken away, and then fuch an epsotick applied, as may not by the too much drinse leave the fcare too hollow, or the too little, leave it too high.

Of simple Medicines, and their Use.

1645
Chapter XVII.

Of Glutinatives.

Glutinating or agglutinative medicine is of a middle nature, between the farcoticke and epulotick, more strong than the former, and weaker than the latter, for it is dry to the second degree. It by the drying and attritive faculty, voide of all detrition, conjoynes parts that are distant, or rather lends helping hands to nature the principal agent in this work. Glutinatives, whether they be strongly or weakly thus, doe agglutinate either by their proper or accidentall nature: Of this fort are Plantaginis omnes species, consolida atragae, buglossa, millesolium, verbena, pimpinella, pilosella, canua equina, jempervoxum, telephium, sanicula, uralisulis, folia quercum & dracunculi, salix, ebulus, sambucus, pensaplydon, veronica, cortex pins, ulmi, palma quercus, Aqua viva, ac.r. solidcultis ulmi, sucus calaminthe, vinum aufforum, myrrha, suavis draconis, bulus armenius, terra segillata, omnia denique acerra.

Glutinatives by accident are those that hinder defluxion, and bind the parts, as Sutures, Bandages, reft, rowlers, and the like. We use glutinatives in greene, and as yet bloody wounds, whence the Greeks call a glutinative medicine Enema, although sometimis they are used to inveterate, maligene, fithfulous and famous ulcers; for they hinder the defluxion from comming to the lips of ulcers. You must consider, when as you intend to apply them, whether the skinne be whole or no: For ulcers knit together, or heal more difficultly, if the skinne be rubbed off, or cur, or otherwise loft. Neither ought you to be unmindfull of the fore-mentioned cautions and indications drawnne from the fexe, the tenderneffe or hardneffe of the affected body, the continuance and magnitude of the ulcer: for hence indication must bee taken, what the quantity and quality of the medicine ought to be.

Chapter XVIII.

Of Pyrotickes, or caufticke Medicines.

Hat medicine is said to be Pyroticke or Caufticke, which by its acrimony and biting, commonly confifting in an earthy confistence, either superficially corrodes, or more deeply etches and putrefies, or lastly, burns and consumes the skin and flesh, so that it even pierces into callous and hard bodies. Therefore there are three degrees of Pyrotickes; for some are termed cautereticke or corroding, for that they waft the proud flesh of an ulcerated or any other part, and these are judged the weaker fort of the Pyrotickes. Othereome are termed Septicke or putrefying, as those which destroy and disolve the tender and new sprung up flesh, and raise blisters in the skynne, and these are more powerfull than the cautereticke. Lastly, there are otherforme termed most powerfull Escharoticke, which by their fiery and terrestriall quality cause eschars or crusts; whereupon they are also termed Ruptories, & potentaill Cauteries: Now all these differences are taken from that they are more or lefe powerfull. For it oft-times happens, that according to the different temper and confistence of the parts, according to the longer or shorter stay, a Cautereticke may penetrate as farre as a Septicke, and on the contrary, an Escharoticke may enter no farther than a Septicke. These are judged Cautereticke, Spongiosa, alumen usum & non usum, vitriolum usum, calce medicis ter lata, arugo, chalcantibum, jaramma arus, oleum de vitriolo, trochisci andromis, phoasonis, asphodelorum, ung. Egyptiarem, apalis orum, pulvis mercurii, arsenicum sublimatum.

Cautereticke.

Septicke and Veficatories are, Radix scilla, bryonia, xigilla, beata Maria, buglossa, radix ranunculi, panu porcini, apium, rufus, lac vituli mollusum, lac fist, euphorbiwm, amoncarus.
Of simple Medicines, and their Use.

Iv  IB.  z  d.  Of  fimle  Medicines, and their  Use.

Escarotickes or Cauffickes are, Calx  viva, fax  vini  crema, &  praecipit  acuti, Efcharotick.
ignis, wheroeto are referred all Cauteries, as well actual as potentiall, whereof wee
shall treat hereafter.

We use Cathetrickes in tender bodies and diseases not very contumacious: Their use
therefor by how much they are leffe acrid & painfull, by so much oft-times they
penetrate the deeper, for that they are leffe troublesome by delay; but we use Sep-
tickes, and sometimes Escarotickes in ulcers that are callous, putrid, and of inex-
hausted humidity, but principally in cancers, carbuncles, and excessive hemorrhagies.

When as we make use of them, the patient must have a convenient diet appointed, must abstain from wine: lastly, they must not be used but with great discre-
tion; for otherwise they may cause feavers, great inflammations, intolerable
pains, twinnings, gangrenes, and sphaecles. Cauteries needfully used, strengthen
and dry the part, amend an unnameable distemper, dull the force of poisson, bridle
putrefaction and mortification, and bring sundry other benefits.

CHAP. XIX.

Of Anodynes, or such as mitigate or assuage paine.

Before we treat of Anodyne medicines, we think it fit to speake of the
nature of paine. Now paine is a sorrowfull and troublc/sor will be cau-
sed by some sudden distemper, or solution of continuity. There are
three things necessary to cause paine: The efficient cause, that is, a sudden
departure from a natural temper or union; the sensible of the body
receiving the dolorifke cause: lastly, the apprehension of this induced change,
caused either by distemper or union; for otherwise with how exquisite soever
the body receiving the cause is indued with, unless it apprehend and mark it, there
is no paine present. Hence is that Aphorifm of Hippocrates, sicunque parte aliqua
corporis dolentes dolorem omnino non sentiunt, his mens agrotat, that is, Whosoever
pained in any part of their bodys doe wholly feele no paine, their understanding is
ill affected and depraved. Heat, cold, moifture, and drinke, induce a sudden change
of temper; and heate and cold cause sharpe paine, drinke moderate, but moifture
scares any at all: for drinke causeth not paine so much by its quality, as it doth by
the quantity. Both the fore-mentioned qualities, especially associated with matter,
as also certaine external causes too violently affailing, such as these that may cause
contusion, cut, pricke, or too much extend. Wherefore paine is a symptom of the
touch, accompanying almost all diseases; therefore oft-times leaving these, they
turn the councell of the Physitian to mitigate them, which is performed either by mi-
tigating the efficient causes of paine, or dulling the sense of the part. Hereupon they
make three differences of Anodynes: For some serve to cure the disease, otherfome
to mitigate it, otherfome stupefie, and are narcotick. We terme such curative of the
diseases, which refift, and are contrary to the causes of diseases. Thus paine, caused
by a hot distemper, is taken away by oyle of Rofes, Oxycrata, and other such like
things, which amend and take away the cause of paine, to wit, the exceffe of heat.

Paine caused by a cold distemper, is amended by Oleum Laurinum, Nardinum, de
Caflorae. Paine occasioned by too much drinke, is helped by Hydrelaeum, a bath of
fresh and warme water. Lastly, by this word Anodyne, taken in the largest sense,
wemunderstand all purging medicines, Phlebotomy, Scarification, Cauteries, Cup-
pings, Glyfters, and other such like things as evacuate any store of the dolorifke
matter. But such as are properly termed Anodynes, are of two forts: for some are
temperate, others hot and moist in the first degree, and consequently, nearer to those
that are temperate: thefe preferre the native heat in the proper integrity, thus they
amend all distemperatures, of this kinde are accounted Sallade oyle, oyle of sweete
Almonds.
almonds, the yolks of eggs, and a few other such like things, these strengthen the native heat, that thus encreased in sub stance, it may with the more facility overcome the cause of paine: besides also, they rarifie, attenuate, digest, and consequentely evacuate both grosse and vifcid humour, as also cloudy flatulencies hindered from passing forth: such are flowers chamameli, melissati, crocus, oleum chamamelinum, anethiunum, oleum lini, oleum ex semen albae, lumbricorum, ovariwm, ex utrius, butyrum, lana succida, suillus adeps, viscinum, gallinaceum, aiterius, humanae, ex anguila, cunicula, et aliis. Lac muliebre, & vacinnum, mucaga feminis lini, seengrasti, albita, malva, vele ejusmodi seminum decocitionis: as also Decocum liorum, violarum, capitum, pedum, & in tefinum arctis & nardi.

Narcoticke, or stupeying medicines, improperly termed Anodines, are cold in the fourth degree, therefore by the excelle of cold, they intercept or hinder the passage of the animal spirit to the part, whence it is that they take away lente: of this fort are hyoscyamus, cicuta, solanum manicum, mandragora, papaver, opium, artefis. sima vincula.

You may make use of the first sort of Anodynes in all disea ses, which are cured by the opposition of their contraries: but of the second, to expunge paines that are not very contumacious, that by their application wee may refit defluxion, inflammation, the feaver, and other symptomes. But whereas the bitternes of paine is fo excessive great that it will not floop to other medicines, then at length we must apply to the third sort of anodynes. Yet oftentimes the bitternes of paine is fo great that very narcoticks must be applied in the first place, if we would have the part and the whole man to be in safety. Yet the too frequent use of them, especially alone without the addition of saffron, myrrh, colchicum, or some such like thing, is very dangerous: for they extingufh the native heat, and cause mortification, manifefted by the blackeness of the part. But intolerable paines, to wit, such as are occasioned by the exception inflammation and gangrenes, may bee sooner mitigated by opening a vein, purging and scarifying the part affected, than either by properly termed anodines or narcotickes, to wit, that paine may bee the remedy of paine.

By pursers we here underfand not onely such, as taken by the mouth, produce that effect, but also such as outwardly applied performe the fame, as those whereof detius makes mention. As,

Rec. pulpa fei medul. colocynth. semen. eruc. rut. sylvb. elaterii, gr. cindii, lathyrid. expurgatar. galban. mitri. eere. singulorum. addi. appan. addi. terebuthis. addi. terenda se rite. & taurina felle paulatim irrigata, donee apte imbibantur. Then apply it about the navell even to the shire, for thus it will purge by stool: if on the contrary you apply it to the bottome of the stomacke, it will caufe vomit. Another, Rec. elaterii, addi. colocynth. commone. squamma arii. radic. cucumer. agerbi. lathyrid. add. aut pro lathyrid. tisymphal. focomum triste & cibrate, ac omn alium plurimum salu habente subiitigio. magnum inde pilmone. lana confertam ad modicamentum silitam, umbilico aut umbilico applicato. Or, Rec. felloe taurin. addi. gr. cindii urid. addi. succi lupinum, urid. addi. capsibori. addi. pulpa, colocynth. tantundem adip. vulpin. recent. addi. adip. eiper. add. stercor. murr. addi. succi poen. casior. singulor. add. ol. ligustrin. add. ol. antis. addi. fit ungumentum vel oleum. It purgeth without trouble, and besides the other commodities it is also good against deflation or madness. Two spoonfuls is the greatest quantity to be used at one time, for in some one is sufficient: anoint with it the navell and therea fount, and a just purgation will ensue thereupon, which if it fall faye out beyond your expectation, you may foment the belly with a sponge moistened in warm wine and prefed forth againe, and it will be presently fayed. Moreover Ferrelius lib. 7. method, makes mention of a laxative ointment.
Of the composition and use of Medicines.

There we have spoken of the faculties of simple medicines, now we think good to say something of the compounding of them: for so by the Architect are had & known every thing apart, and then he setteth the workmen to the building, the conceived forme of which hath beene in his minde ever since hee did enterprize it. Therefore the composition of divers medicaments with their qualities and effects, is a mingling appointed by the art of the Physician. Hence therefore rhcum, aloes, rofe, absinthium, although they have divers substances and faculties, yet are notwithstanding called simple medicines, because they have that variety from nature, not from art. But we many times call simple such things as are compounded by art, as syrup, simplex, simples, as compared to greater compositions. And therefore, often times we use compound medicines, because alwayes the simple medicine alone, hath not strength enough to oppugne the disease. For many times the sicke labour with manifold, and not simple effects, from which there being taken a various indication, we gather contrary simple medicines, to apply to every effect, in one composition. But often times the nature of the part, or of the body affected, requireth another kind of medicament which may bee proper for the removing that disease; wherefore it is so made to oppugne the disease and not offend the body: and we mingle many other together, whose effects may temper one another. Moreover, the composition of medicines was necessity, that because those things which have not a good taste, colour, or finell, by art or composition might be made more grateful. Compound medicines of which we intend to speak, are Gargarisms, Suppositories, Nudos, Pessaries, Oiles, Liniments, Ointments, Emplasters, Cerats, Pulvis, Cataplaftes, Fomentations, Embrocations, Epithemaes, Vesicatories, Cauterizes, Collyris, Ointments, Smoking powders, Masticatories, Gargariles, Dentirices, Bags, Fumigations, Semicupiums, Baths. But first it is expedient that I say something of weights and measures, with their notes, by which medicines commonly are measured and noted by Physitians.

Of weights and measures, and the notes of both of them.

Very weight ariseth from a beginning and foundation, as it were, for as our bodies doe arise of the foure first simple bodies or elements, into which they are often resolved: so all weights do arise from the graine, which is as it were the beginning, and end of the rest. Now hereby is understood a barley corn or graine, and that such as is neither too dry, or overgrowne with mouldineffe, or rancide, but well conditioned, and of an indifferent bignesse.

Ten grains of these make an obolus; two oboli, or twenty grains make a scruple; three scruples, or fifty grains make a dramme, eight drammes make one ounce, twelve ounces make one pound medicinally, which is for the most part the greatest weight used by Physicians, and which they seldom exceed; and it is resolved into ounces, drammes, scruples, oboli and grains, which is the least weight. To express these weights we use certaine notes, the pound is expressed by this note, lb., the ounce by this, 3, the drammen, 5, the scruple thus, 9. the obulus with the beginning letter thus, obol. the graine with his beginning letter thus, g. But sometimes we measure the quantity of medicines by measures and not alwaies by weights: and therefore we express a handfull by this note, m. a pugill thus, p.; number thus, n; and the half part of every weight and measure is expressed by this note, ½, put after every note of the aforesaid weights and measures of the same sort, as the halfe pound, ½ lb.
Offsimple Medicines, and their Use.

Lib. 26.

1 lb. the halfe ounce, 3 lb. and fo of the reft. Moreover, in describing the same medicament wee use the notes sometimes of weights, sometimes of measures; and therefore it is to bee noted that herbes, greene or dry, are signed with these notes, m. p. but those which are dry and be brought to powder, with these notes, 3. p.

<table>
<thead>
<tr>
<th>Medicament</th>
<th>Note</th>
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<tr>
<td>Roots,</td>
<td>3. p. m.</td>
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<tr>
<td>Barks,</td>
<td>3. 3.</td>
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<tr>
<td>Seeds,</td>
<td>3. 3.</td>
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<tr>
<td>Fruits,</td>
<td>by these</td>
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<tr>
<td>Flowers,</td>
<td>p.m. 3. 3.</td>
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<tr>
<td>Pulses,</td>
<td>p. 3. 5.</td>
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All other medicaments either dry or liquid, are described with these notes, lb. 3. 5. 9. obol. p.

Having expounded these things, let us come to the description of compound medicines, beginning with glysters first, as the remedy which is most common and familiar, and almost chiefly necessary of all others.

**Chap. X XII.**

of Glysters.

Glyster is an injection prepared first and properly for the grosse intestines and fundament. Sometimes glysters are used & made for the stomack, spleen, reines, bladder, womb, melentery, and also for the head, from whence offen times by sharp glysters, the hurtfull matter is brought downwards, as we see in Apoplexies. Therefore there is no part of the body which receives not some benefit by glysters, but more or lesse according to the vicinity they have with the belly, and the strength of the glyster: for there are divers sorts of glysters, some emollients, other evacuating, some anodynes, some astringents, some cleansing, some farcoitick, and epuletick, and some may be said to nourish.

They are all made of the parts of plants or beasts, with compound medicines either solutive or altering, and others according to the advice of the Phyfitian. The parts of plants which are used to this purpose, are roots, feedes, leaves, flowers, fruits, shoures, juices, mucilages. Parts of beasts are yeles of egges and whites, honey, chickens, capons, old cockes well beaten, heads and feet of the shepe, the intestines, whey, milk, fewer, axungia, and such like in decoctions, wherein wee mingle and distill simple and compound medicines. Wee sometimes use without any other medicament, to make a glyster with oyle alone, as oile of nuts for the Cholick, of whey alone, the decoction of the head and feet of the shepe alone, and of the decoction of Cicers and barley do we prepare glysters.

The quantity of a glyster is sometimes lesse according to the divers disposition of men and their diseases: for weake children the quantity is lesse: for women with child, and in the cholicke, dyfcnticy, or when much hardened excrement is within. But when wee would abundantly move the excrement, and there is nothing that may hinder, the dose of a glyster for the most part is halfe a pound, one pound, or three quarters of a pound. The glyster must bee injected warme or hor, more or lesse according to the nature or condition of the sick; for being cold it offends the intestines, and the neighbouring nervious parts, which are cold of themselves. It must bee given by degrees, for being injected bodily, the wind which is usuallie in the guts will beat it backe againe, whence comes intolerable pain. But this will bee more cleare by that wee shall teach concerning the differences of glysters, whereof there shall be sufficient examples.

An emollient glyster.

- R. male. viscol. bisnate. acanth. an. m. i. rado. liliat. liliur. an. 3 i. paffif. ficumnum ping. 3 lb. fis deoctio ad lib i. in qua dissolve cass. butyr. recent. an. 3 i. viu. 3 iii. fis glyster.

Glysters
Of simple Medicines, and their Use.

Glysters, that doe evacuate, are prepared by the councell of the Phyftian, and of divers Simple, being boyled for severall purposes. Therefore if the humour bee cold which are to bee evacuated, the Glyster shall bee after this manner: R. Sabadis organi, albomoton, chamam, Mellis, an. m. P. Seminae an. f. f. f. f. rad. cumin, an. 3. f. melis cand. an. 3. f. Make a decoction of them, wherein difsolve Diaphon, Hier. Simp. an. 3. f. oth. chamam. an. 3. f. Melis Anthe, fachis. m. an. 3. f. flat Glyfter.

To evacuate Cholericke matter, prepare a Glyster after this manner.

R. quatr. remollient. pariens, Chichor. endi. an. m. 3. f. Seminae quattuor. f. frigid. Maj. an. 3. f. hordei integ. an. 3. f. Make a decoction of them, and difsolve in it Cass. 3. f. oil. viol. melis vol. an. 3. f. flat Glyfter.

To evacuate melancholy, this Glyster following will be ufcfull.

R. Fumifer. Centaur. minoris, Mercurialis, an. m. 3. Polyp. Quin. folical. fenna, an. 3. f. Seminae aquae caele, Thymian. an. 3. f. Make a decoction, and difsolve therein, Confeel. Hameeb. 3. f. Caff. recens. extr. 3. f. oleis violat. sabin. an. 3. f. Sab. rub. melis viol. an. 3. f. fali. an. 3. f. And thefe Glysters doe not only evacuate the humours that offend, but alfo correct the distemper of the bowels and inward parts. For the Glysters described againft pittuous and melancholy matter, helpe the cold distemper, but that which is for choler, the hot distemper. Purgings medicines, which are difsolved in the decoctions of Glysters, are very strong, as, Confeel. Hameeb. Benedicte, Diaprun, Solvatrum, Diaphoanum, being ufed from 3. vi. to 3. i. at moft: but the weaker and more gentle are Catholicon. Caftia. Hier. simplex, from 3. vi. to 3. i. at moft.

An Anodyne Glyster is ufcually made without fuch things as purge or evacuate: as,

R. Flor. Chamam. melis. Anthe, an. p. i. rad. Bisful. 3. f. Boyle them in Milke, and to An Anodyne the decoction addde Mucaginis feminis lim auctus extract. in aqua Malv. 3. f. Jcn. helani. oleis anethi. chamam. an. 3. f. vitellos ovorum duo. flat Glyfter. Thefe Glysters should be kept longer in the body, that fo they may more easilie mitigate paine.

The example of an astringent Glyster.

R. Equi faires, Plantag. poligon. an. m. 3. Boyle them in latte usulato, to 3. xii. to the An astringe decoction tria dig. Boli armenti fangumis draconis. an. 3. f. oleis rofati, 3. f. alhiam. ovorum duorum. flat Glyfter. We ufe thefe kinds of Glysters in Dyfentaries, and in the immoderate fluze of the Humaroid veins, having first evacuated the usuall excrements. Glysters, which bee farotice, epuloticke, and cleansers of the greater guts, and fit for the curing of ulcers, are to be prepared of fuch medicines as are described before in their proper Chapters.

Alimentary Glysters are made of the decoction of Chickens, Capons, Cockes, being boyled to a gelly, and strongly prefent forth. They are also prepared of Marrow, being thefe kinds of Glyters are prepared in wine, where there is no paine of the head or feaver, but more frequently in the decoction of Barley, and in Milke, adding the yelkes of Egges, and some small quantity of white Sugar, left by the cleaning faculty it move the guts to excretion. And therefore Sugar of Rose is thought better, which is conceived to bee somewhat binding. Here you may have examples of fuch Glysters. R. Decotionis Capri perfefti co. 1. 3. f. sacher. albi, 3. f. misfit. flat Glyfter. R. Decoli. Puli & Galatina an. 3. 3. ovi, 1. 3. rep. 3. f. vit. flat Glyfter. R. Decoli. bordei munduri, & in cremorem redacti 3. 3. laetic boni 3. 3. vitellos ovorum duo. flat Glyfter. We ufe thefe kinds of Glysters to strengh-then
then children, old and weake men, and bodies which are in a Consumpition. But in the use of these there are three things to be observed: First, that the succulent excrements be taken away, either by strength of nature, or by art, as by a suppository, or an emollient Glyfter, left the alimentary matter, being mingled with them, should be infected and corrupted. The other is, that there be great quantity given, that so some may ascend to the upper guts. The third is, that the fickle sleep after the taking of it; for so it is more easily converted into nourishment, and the alimentary matter is better kept: for sleep hindereth evacuations. In Glysters of this kinde wee must beware of Salt, Honey, and Oyle; for the two first provoke excretion by their acrimony, and the last by his humidity doth relaxate and lubricate. They, who thinke no kinde of Glyfter can nourish or sustain the body, relye upon this reason: That it is necessary whatsoever nouriseth, should have a triple commutation or concocion in the body: first, in the stomacke; secondly, in the liver: thirdly, in all the members. But this opinion is repugnant to reason and experience: therefore feeing nutrition is a repletion of that part of the body, which is empty, without doubt the empty and hungry parts will draw from any place that nourishment which is fit and convenient for them, and in defect thereof, whatsoever they meet with, which by any familiarity may affwage and fatisfie their desire. But the alimentary Glysters, by us described, consist of things which agree very well with the nature of our bodies, and such as are boiled and ordered with much art, so to supply the chylification to bee performed in the stomacke. Therefore they may be drawn in by the meferaicke veins of the guts, which, according to Galen, have a certaine attractive faculty. And thence they may bee easily carried through the gate veins, liver, and so over the whole body. And experience teacheth, that many sick people, when they could take nothing by the mouth, have bin sustained many daies by the helpe of these kinde of Glysters. What is more to bee said? We have seen those who have taken a Suppository by the fundament, and vomited it at the mouth; by which it also appeareth, that something may flow without danger of the sicke from the guts into the stomacke.

Commonly they give Glysters any houre of the day, without any respect of time, but it should not be done unless a great while after meales, otherwise the meat being hindered from digestion, will be drawne out of the stomacke by the Glyfter.

Glysters are used to helpe the weaker expulsive faculty of the guts, and by consequenece also of the other parts, both that such as through want of age, and old people, and such as by reason of great imbecility by fickneffe cannot admiss a purging medicine, may by this means at leaft easie themselves of the trouble and burden of hurffull humour. Galen hath attributed to Storkes the invention of Glysters, which with their bis, having drunke Sea water, which from saltneffe hath a purging quality, wash themselves by that part, whereby they use to bring away the excrements of their meates, and of the body. But a Glyfter is fitly taken after this maner: whilst the Syrensge is express'd, let the patient hold open his mouth; for by this means all the muscles of the Abdomen, which helpe by compreffion the excretion of the guts, are relaxed. Let him weare nothing that may gird in his belly, let him lye upon the right fide, bending in a semicircular figure; and so the Glyfter will the more easilly pafse to the upper guts, and (as it were) by an overflowing, wet and washe all the guts and excrements. It happeneth otherwise to those who lye upon their left fide, for the Glyfter being fo injected, is conceived to abide; and (as it were) to stop in the Intestinum rectum, or Colon, because in this fite thefe two Intestines are oppreffed, and as it were shut up with the weight of the upper guts. A little while he may lyce upon his backe after hee have received the Glyfter, and presently after hee may turne himselfe on either fide. And if thre be paine in any part, so long as he is able he may incline to that fide. Moreover, because there are many, who cannot by any reason be perfwaded to shew their buttockes to him that should administer the Glyfter, a foolish shamefastneffe hindereth them: therefore I thought good in this place to give the figure of an Instrument, with which one may give a Gly-
Chap. XXIII.

Of Suppositories, Nodules, and Pessaries.

A Suppository is a certaine medicine, formed like unto a tent, or goblet of paste, such as is commonly used to fat Fowl. It is put up into the fundament, that it might excite the sphincter muscle to send forth those excrements which are kept in the guts. Antiently it had the forme of an Acorne, whence it is called to this day Glans. The Suppositories we now usually make have the forme of a Peflary, that is, round and longish, in the forme of a waxe Candle. They are either weake, stronger, or sharpe; the weake are made of the stalks or the roots of Beets, of Lard, boiled Honey with Salt, or of Cattel-lfeue. The stronger of purging powders, as Senna with Salt and Honey. The sharpe with Scammony, Coloquintida, and like things powdered, and with Honey, or the juices of sharpe herbes, or mingled with the galls of Beasts. It is commonly made thus: R. Medii 3i. Salis aut pulvis alterius irritantis 3i. The forme.

R. Medii cauli 3i. s. Coloquintidae 3i. Salis gemmae 3i. sunt Suppositorium. Wee use the use.

Suppositories, when the sick feed by his infirmity is unwilling, or not able to bear or away with a Glyfter, as in burning Feavers: or, when as one being injected is flow, and refeth in the guts. And we use the sharper Suppositories in feuerous affects of the head, that they might provoke the dull faculty of the guts to expellion. As also, when the condition of the diseafe is fuch, that by the use of Glyfters there is manifext hurt: as, in an Enterocoele, where the gut fo fvels, that over and above it be filled by the glyfter infued, it would the more pofite the Peritoneum, fo that straightwayes by the relaxed or broken part it might easilie be devolved into the Codde.

Nodules have the fame ufe with Suppositories, and are oftimes subtituted in stead of Glyfters. They are made of gentle medicines, as the yeales of Eggges with a little Salt and Butter, or of Gall and Honey tyed up in a cloth in the forme of a Filbert, the string of it may hang forth, whereby the Nodule in the fundament may be drawn forth. This description may be an example of Nodules: R. Pistilli unius. The forme of a ovii, cui adda salis medicine, fellis ceroverce, melis unius. S. buatyri 3ii. miifice, sive noduli Noduli. A Peflary

A Peflary is grofer than a Suppository, and is appoinned for the wombe, being Peflaries: made with Cotton-wool or Silke steeped in some medicament, and then put into the necke of the wombe.
A pellary is used either to ulcers of the necke of the wombe, or for the procuring, or stopping of the Menstrua, or against fordid and hurtfull humouris of the wombe causing hysterial paffions, and therefore to be wafted away and evacuated. There-fore in the composition of pellaries are used gummes, juices, feeds of herbes, roots, and many other things, according to the advice of the Phifitian; they are also made of a solide conffance, the bigneffe of a finger, that they may enter into the necke of the wombe; thefe being tyed with a string, which muft hang forth to pluck it out withall when occasion serves. This following may be an example of their decription. 2. myrth, aloes an. 5 fabin. femin. nig., arthemis. an. 5 i. radic. ellebor. nig. 5 i. croc. 3 radic. suco mercurial, & melle fat. pell. let it bee tied to the thigh with a thread. Or this, R. mafch. thurii, an. 5 iii. alum. ref. rub. succ. cupref. an. 5 ii. ladan, hypos. samach, myrtil. an. 3 iii. sum. fat. succ. arnagloss, & cotoniourum. According to this example others may be made for to mollifie, to bind, to cleanfe, to incarnate, to cicatrize and cover the ulcers of the wombe: they are to be put up when the patient lieth in bed, and to be kept all night.

Pellaries are also made of medicinable powders, not onely mingled with some juice, but also with those powders alone being put into a little bagge of some thinn matter, being stuffed with a little cotton that it might be of a convenient stiftenefle, and this kind of pellaries may bee used profitably in the falling of the mother.

An example of one mentioned by Rondelius in his booke of inward Medicines, is as followeth.

R. Benirini, hysracis, Caryoph. an. 5 gal. mafch. 3 6. mafch. gr. vi. fat. pulv. this being made up with cotton may be put up into the body.

CHAP. XXIV.

of Oyles.

Rooperly and commonly we call oyle that juice which is pressed forth of Olives; but the word is used more largely, for we call every juice of a fluxible, unftuous, and acry fubftance, Oyle. There are three differences of these oleaginous juices: The first is of those things which yeeld oyle by expreffion, as well fruits as seeds being bruifed, that by beating the oily juice may be pressed forth: fome are drawn without fire, as oyle of fweet and bitter almonds, oyle of nuts, oyle of palmes, others are made to runne by the helpe of fire, by which meanes is gotten oyle of baies, linsecd oyle, rape oyle, oyle of hemp, and fuch like: The manner of drawing oyle from feeds is set downe by Gesue in his third booke.

The second fort is of thofe oyles which are made by the infufion of simple medi-ecines in oyle, wherein they leave their qualities: and this is done: three severall waies, the firft is by boyling of roots, leaves, tops of flowers, fruits, feeds, gummes, whole beaftes, with wine, water, or some other juice, with common, or any other oile, until the wine, water, or juice bee consumed, which you may perceive to bee perfectly done, if you caft a dropp of the oyle into the fire, and it maketh no noise but burneth. It is to be remembered that fometimes the feeds or fruits are for a cer-taine time to be macerated before they are fet to the fire; but it muft bee boiled in a double vefsell, left the oyle partake of the fire.

After this manner is made oleum cofinum, rutaceum, de croco, cydoniorum, myrtillo- rum, magnelobium, de euphorbi, pulpium, de scorpiobus, and many others. The sec-ond is by a cer-taine time of maceration, fome upon hot athes, others in horfe dung, that by that moderate heat the oile might draw forth the effects of the infufed medi-ecines into itelfe. The third is by infolation, that is, when thefe or thefe flowers, being infufed in oyle, are expoſed to the funne, that by the heat thereof the oile may change
change, and draw into him (else the faculty of the flowers which are infused: of this
kine are oile of rofes, chamomile, dill, little, of water little, violets, and others,
as you may fee in Medec.
The third kine is properly that of the Chiniifls, and is done by resolution made
after divers manners, and of this sort there are divers admirable qualities of divers
oleaginous juices, whether they be made by the fune or fire, or purefaclion, as we
shall speake in his place hereafter.
Wee use oiles when wee would have the vertue of the medicament to pierce
deepe, or the fubftance of the medicines mingled with the oile to bee fof and gen-
tle. Moreover, when wee prepare oiles that should be of a cooling quality, the com-
mon oile of the unripe Olive is to be ufed: of that shoulde the oile of rofes be made.
Againe, when we would prepare oiles of heating qualities, such as are Oleum phi-
lofophorum, or of Tilles, sweet and ripe oile is to be choosen.

CHAP. XXV.

Of Liniments.

Liniment is an externall medicine of a meane confiftence, what link
between an oile and an ointment, for it is thicker than an oile;
for besides oile it is compounded with butter, axungia, and
fuch like, which is the reafon why a liniment is more efiica-
cious in ripening and mitigating paine, than fimple oile. The
varieties of liniments is drawn from their effects, fome coole,
others heat, fome humect, fome ripen, others by composi-
tion are made for divers ufe. The matter whereof they are u-
ually made, is oile, axungia, fewer, butter, all thofe things
which have an oily fubftance or confiftence, as Syrax liquida, turpentine, the mucia-
lages of fenugreeke, marsh mallowes, marrow, and other like. To thofe are some-
times added powders of rootes, feedes, flowers, rindes, metals, but sparingly, that
the liniment may be of a liquid confiftence.

An example of a liniment that is good to attenuate, heat, and digest, is
this that followeth.

R. ol. amygd, amar, lilior. an. § i. axung. anat. galiin. an. § B. bätgr. fai. expert. § i.
mucag. fem. allb. fienogr. extracl. in aq. hyffep. an. § B. palver. cocis. ivers. an. § i. fat
linimentum.

This may be an example of a liniment to humect and mollifie.

R. ol. amygd. dulc. § ii. axung. human. § B. mucag. femin. malv. extracl. in aq. pari-
etar. § B. fat linimentum: you may add a little faffron. There bee many others like
thefe which may be made for divers affects. They are easily applied to every part of
the body, because they are not fo liquid as oiles: the reafon is, they are more agree-
able to any of the parts. If they be to enter into any crooked narrow paffage, such
as the care, they must be more liquid, and have more oile: if they be to flicke on the
part, they will admit of more axungia and fewer.

They are deceived who thinke that the difference betweene liniments and oin-
m ents is, that there is no waxe in liniments as there is in unguents; for there be some
unguents which admits not any waxe to bee added, as Egyptiacum, and all fuch as are
used in gangrenes, and all forts of putrid ulcers; because to their kinds of difeafe all
fatty things, as oiles, fats, rofines, and waxes, are enemies. Therefore wee substi-
tute in the place of them in Egyptiacum, hony and verdigrea; for of those it hath his
confiftence, and his quality of cleaning.
Ointments & their differences.

Ointments are of more solid consistence than Liniments, and are therefore of more force. Their differences are partly taken from their effects, as for some heat, others cool, some dry, and some humed, some cleanse, some corroborate, some waste dead flesh, and others cicatrize, partly from the variety of colours, partly from the first inventors, as, Album rhosit, Desescaurus rubrum: partly from the number of the simple medicaments whereof they be made, as, Tetrapharmacon, Tripharmacon, or Nutritum: partly from that medicament which is principally in the composition, hence are they called, Unguentum de Lytharguro, de Anino, Diaphempolis, and such like: They are compounded of herbs, roots, seeds, fruits, metals, and parts of Beasts, the juice and other liquid things being consumed away by boiling, as we have said in the Chapter of compound Oylcs. Herbs, and the parts of them, if they be dry, must be powdered, and also metals; but being greene, they are boiled and strained forth, and the juice so pressed is wafted by boiling. Gums and Rosins some are powdered, others being put to some convenient liquor are dissolved by fire. So Wax is dissolved in the Oyle. In the composition of ungents this proportion is usually observed, that for one ounce of powder, two ounces of Wax, and eight of Oyle is added: notwithstanding for that Wax serveth only to the consistence of the oynment, it is better to leave the quantity to the will of the Apothecary; but he may be more sparing in adding Wax to the ointments in the Summer than in Winter: for the heat of Summer, drying them, addeth to the consistence.

There are three ways of making Ointments: The first is of those which are made only by stirring or grinding in the Mortar without any fire, and so is made Unguentum nutritum. The second is, when we dissolve Wax in Oyle, Fat, or some such substance with fire: and being all dissolved, we mingle the powders according to the proportion we noted before. After which manner are made Unguentum Aurum, Basilicon, Diaphempolis, Desescatus rubrum, Enulaum. The third is, when we bruise herbs with a Pestell, and mingle them with Axungy, boiling them together, and then straining them, and the Oymcnt is that which is strained. Therefore let us proceed to explain this by examples.

Bc. Lybar. aur. trium, & fole. \textit{aceti rufii,} \textit{fat Unguentum.} First, wee put the Lytharge into the Mortar, povring in a little Oyle, and working it with a Pestell, that it may grow thicke, then with the Oyle we put a little Vinegar, continually working, untill they mingle into one body, now and then betweene whiles adding sometimes a little Oyle, sometimes a little Vinegar, untill the whole bee brought to the consistence of an Oymcnt. If of an Ointment of this kind you would make a blacke platter, by degrees consume all the Vinegar, so shall the platter shine and grow blacke.

Bc. Cera citri. \textit{Si. olei boni.} \textit{fat Unguentum.} First, dissolve the Waxe with a good part of the Oyle, then adde the Rosin and Colophony broken small. These being dissolved, take the composition from the fire, and then adde the Turpentine: when the whole is somewhat cooled, adde the \textit{Olibanum} and Masticke being finely powdered, then the Saffron, which shall be macerated in the rest of the Oyle.

Tetrapharmacon is so called, because it is made of four simple medicines, Waxe, Rosin, Pitch, Tallow, of each a like quantity, and so equally mixed.

R. \textit{Oleis rufi,} \textit{vacill.} & \textit{cera.} \textit{fat Unguentum.} If you would have it harder, be that ointment also is called Basilicon.
Waxe being cut small and dissolved in Oyle, then add the rest of the things, which being dissolved, thou shalt have the defined ointment.

R. Olea ref.3ix. cer. alb. et fii. quae olea potenti�. 3ii. Cernef. lot. 3i. Pompholygos, plumb. depl. fib. 4. Pomeror. olei & lot. olis. pari. et. 3. phil. uni. fii. Unguentum. Dissolve the Waxe in the Oyle with a gentle fire, then you shall take it from the fire, and add to the rest of the ingredients, working them together in a stone Mortar, pouring on the juice by degrees, at least to much of it as will incorporate.

R. Lap. calam. cer. 3an. 3ii. Litharg. aure. ceruf. 3ii. Camphor. 3ii. cer. 3ii. Olei. Ung. depl. roto. viol. an. 3iii. fii. Unguentum. Dissolve the Waxe in the Oyle, then let it into coole, and worke in the powders with a spatere, and at last add the Camphor dissolved in a little Oyle of Bokes, or Rosewater.

R. Radd. eum. cam. coccis. cum aceto & eum. decret. 6. Axyng. torci. plei. commus. aug. Eundem. an. 3ii. argen. vni. extmix. & tereb. lor. an. 3i. salcom. palveratis. 3ii. incorporate them according to art. The boyled rootes must be drawne through a Sieve, which being boyled by a gentle fire with the Axungia, must bee continually stirred, then put to the Salt with Oyle & Waxe; when you set the fire to coole, then adde the Quicksilver, being killed with a little Axungia and Turpentine.

R. Olei roto. 3ix. ceruf. glob. 3ii. cer. alb. glob. make it thus: Let the Cerufbe finely powdered, and put into the Oyle and Waxe whilest it is hot, and so worke the whole together, until they shall be brought into a body.

R. Rad. Ath. 3ii. sini. limi. fangue. an. 6b. Veil. 3ii. Olei com. 3ii. cer. 3fr. tereb. lath. 3i. Gum. heder. glob. an. 3ii. coloph. & refin. 3iii. The rootes and seeds being bruised, are infused for three days in five pinte of water, boyle them until three ounces be consumed, and then draw forth the Mucilage, and boyle it with the Ole, then adde the Waxe cut small; these being taken from the fire, the Gdbanum being dissolved with Vinegar, and mingled with the Turpentine, must be added together with the Gumme Heder, Colophony, and Rosin.

R. Ocul. populi arb. 3bi. fol. papaveris nigr. Mandrag. hyssapi. laeticia. fomperi. fug. Populum. vii pari. & magi. viola nigra. falam. umbilici. venti. feu. cymbalar. bardana. an. 3. (Cordus. Fernelius. & Nicolaus singularum 3iii. preferibunt). Adipis fii. recentis. fals. expertis. 3ii. vini. boni. 3bi. fat. Unguentum. The Poplar buds and Violet leaves must be bruised and macerated in the Axungia for the space of two moneths, that is, until the rest of the herbes be ready; for they cannot bee gathered before the Summer time, but the Poplar buds and Violets may be had in March. They must be bruised and mingled very well, and set in a warme place for eight days; then adde one pinte of strong Vinegar, and boyle them till it be consumed, which may bee perceived by casting a little of it into the fire, then straine it forth, and put up the Oyment.

R. Tereb. cer. alb. roto. an. 3xiv. opoponacis. floris. feu. cirridis aris. nam. bibic. flos. aris non. comple. propriacum. prograsum. quae. seminolam. infar. ab. sem. excitatum. dam. fabris. ferram. ris. aquae singularis. sed pro. cirridis aris ugurpatur. enim. contra. maligne. ulcera. note. sunt. vires. contra. que. ammn. id. Unguentum. e. comparatum. an. 3ii. ammn. 3xiv. aris. sol. thuris. mafulis. an. 3v. myrrha. & galban. an. 3ii. bidellii. 3vi. Liturg. 3ix. olei. 3bi. fat. Unguentum. The Litarghe is to be mingled with two ounces of Oyle for the space of five hours, and with a gentle fire to be boyled untill it come to the confinement of Honey, and be alwayes stirring, lest it burne; being taken from the fire and warme, the Waxe and the Rosin, being disolved, with the rest of the Oyle, must be added. Then put to it, when it is cooling, the Gummes disolved in Vinegar, boyled and incorporated with the Turpentine. Then the Arisolechia, Myrrhe, and Frankinence are to be mingled, and laft of all the Verdigreefe, being in fine powder, and sprinkled in:and to the unguent is made.

R. Coric. median. caflan. coric. median. quere. coric. median. gland. mirtit. ech. cor. coric. tch. fabric. acinor. vor. forbor. ficcor. immatur. mesfillor. immaturor. rad. cedillor. folior. prunor. flor. an. 3ii. Ait. plantaginis. 3vii. cer. 3vii. 3vii. olei myrr. 3bi. fat. Then these things which follow, being finely powdered, are to be sprinkled in.

R. Pulveris corici. median. caflan. corici. median. gland. corici. median. 3rb. gland. id. 3rb. quere. gallar. an. 3ii. Cineris of. coricis. 3br. quere. gallar. an. 3ii. Gineris of. coricis. 3br. quere. gallar. an. 3ii. Gineris of. coricis. 3br.
Chap. XXVII.

Of simple Medicines, and their Use.

Lib. 26.

Trocisforum de carabo, 5. fist. Unguentum. First, make a decoction cortisii medicii arboris querci, acini rufurt. rad. cheilid. melil. forber. equis. feminis myrtis, fulcor. pruni sylvestris, cort. fabar. cortis. medicii gland. cortis. cauhan. & gallar. in the Plantain water for the space of two hours, then strain it, and divide the liquor into nine parts, washing the Waxe, dissolved with the Oyle of Myrtills seven times; the liquor being all spent, and the Waxe and Oyle being melted, then impinge the powders, Curis bovis, effium, cortis. medicii. querc. medicii. cortis. cauhan. gallar. forber. melil. feminis myrtis. aciner. aver. and at last the Trochizes carabo, after this manner shall you make this Oyntment.

R. Olei absinth. maftich. de spic. rofat. an. 5. pulover. absinth. rof. major. menth. an. 5. Corioph. cinam. maftich. galang. an. 5i. Powder those things which are to bee powdered, and with a sufficient quantity of Waxe make a soft oynment, wherewith let the stomack be annointed one hour before meals continually.

R. Cer. alb. ibi. cere. liitharg. aurit. an. li. myrrh. medull. cervi. an. 5i. theris. 3i. olei. Boyle the Liquor in the oy le to a meane consistence, then add to the Waxe & Cruife, and when it will not stick to the fingers, take it from the fire, and put in the Medulla, when it beginneth to coole, the Myrrha and Thym, being finely powdered, must be cast in by little and little, and the oynment may be put up for use. The chops of the fundament, and remollient Pessaries are likewise made of it, and it is very good against the bitings of mad Dogges, and the punctures of nerves and tendons, keeping wounds so that they do not agglutinate.

R. Picis singusi.ibi. Oppanacis in acto forti. oleo liturum. & veleti forci aequinia coti. 5i. fist. Unguentum. Olemex singus is good against those bitings of mad beasts and punctured nerves; for it doth open wounds when they are cicatrized. Oyntments are used to overcome the contumacy of a stubborn evil by their firmness and close sticking to, especially if there shall need no medicine to goe further into the body.

Uch affinity there is in the composition of a Cerat and Emplafters, that oftentimes the one is taken for the other, as is usually done in Oyntments and Liniments. A Cerat is a composition more solide and hard than an oynment, and softer than a platter, having his name from Waxe, which taking away the fluidness of the oy le, bringeth him to his consistence. The differences of Cerats are taken some from the parts by which they are called, as Ceratum stomachicum: some from the effects, as Ceratum restringens Galeni: Others from the simple medicines which are the chief in the composition, as, Ceratum Santalium. The proper matter of Cerats is, new Waxe & Oyles, being appropriated to the griefe of those parts, so that Liniments & Oyntments doe not differ. from Cerats, if they admit of Waxe: for if oyntment of Roses should have Waxe added to it, it were no longer an oynment, but a Cerat. Cerats, which are made with Roffins, Gunmes, and Metals, doe rather deserve the names of Emplafters than Cerats. And therefore Ceratum ad Hernias, we commonly call Emplaftrum contra Rupturam. If that paine or inflammation doe grieve any part, we make Cerats of platter, dissolved with Oyle, left that the more hard and heavy consistence of the Emplafters should be troublesome to the part, and hinder perforation; and therefore laying aside the composition of Cerats, let us speake of Emplafters.

An Emplafter is a composition which is made up of all kinds of medicines, especially of fat and dry things, agreeing in one grofse, vifeous, solid, and hard body sticking to the fingers. The differences of Emplafters are taken from those things, which the variety of oyntments are taken from. Of those things which goe into the composition of an Emplafter, some are only ufed for their quality and faculty, as Wine.
Wine, Vinegar, Juices. Others to make the consistence, as Litharge (which, according to Galen, is the proper matter of Emplasters) Wax, Oyle, and Rofin. Others be useful for both, as, Gums, Metals, parts of beasts, Rofin, as Turpentine to digest, to cleanse, and dry. Of Emplasters, some are made by boiling, some are brought into a forme without boiling, those which bee made without fire, doe ordinarily, nor are they viscous: they are made with meale and powder, with some juice, or with some humdrum mingled with them. But plasters of this kind may rather bee called hard oyniments, or cataplafmes: for plasters properly so called are boiled, some of them longer, some shorter, according to the nature of those things which make to the composition of the Emplaster: Therefore it will bee worth our labour to know what Emplasters doe ask more, or which leffe boiling. For roots, woods, leaves, flakes, flowers, seeds, being dried; and brought into powder, are to be added last, when the platter is boiled as it were; and taken from the fire, left the vertue of these things be loft. But if greene things are to be used in a composition, they are to be boiled in some liquor, and being pressed forth, that which is strained to be mingled with the rest of the composition; or if there be juice to be used, it is to be bruised and pressed forth, which is so to be boiled with the other things, that nothing but the quality is to remaine with the mixture, as wee use to doe in Emplaste Janua, &c. The same is to bee done with Mucilages, but that by their clamminesse they do more resist the fire. But there doth much of oyle and honey remaine in plasters when they are made. Those juices which are hardned by concretion, as, Aloes, Hypocythis, Asafrina, when they are used in the composition of a platter, and yet new, they must be macerated and diffolved in some proper liquor, and then they are to bee boiled to the consumtion of that liquor. Gums, as, Opopanax, Gullum, Sagopanum, Ammoniacum, must be dissolved in Wine, Vinegar, or Aqua vitæ, then strained and boiled to the consumtion of the liquor, and then mixed with the rest of the platter. And that they may have the exact quantity of Gums and Pitch, it is necessary that first they be dissolved, strained, and boiled, because of the thicknes and fordid matter which are mingled with them. You must have respect also to the liquor you use to dissolve them in; for Vinegar of the best Wine doth more powerfully penetrate, than that which is of weake and bad Wine.

Other Gums, which are drier, are to be powdered, and are to bee mingled with plasters last of all. Metals, as, Aesulphum, Chalecit, Magnes, Bolus Armenus, Sulphur, Auri pigmentum, and others, which may bee brought to powder, must bee mingled last, unlese advice be given by long boiling to dull the fierce qualities of them. The like consideration is to bee had of Rofin, Pitch, and Turpentine, which must be put in after the Waxe, and may not bee boiled but very gently; but the fats are mingled whilst the other things are boiling. The Litharge is to be boiled with the oyle to a just consistence, if wee would have the platter dry without biting. The quantity of things which are to be put into a platter can hardly be described, Tho' you shall know the platter is boiled enough by his consistence, groffe, hard, glutinous, and sticking to the fingers, being cooled in the ayre, water, or upon a stone. Also you shall know it by his exact mixture, if that all the things become one matter hard to be broken.

The quantity of things which are to be put into a platter can hardly be described, but an artificiall conjecture may be given, by considering the medicaments, which make the platter flipte, and of a consistence, and the just hardnesse and softnesse they make being boiled. Waxe is not put into such plasters wherein is Labdanum, for that is in stead of Waxe. For if there shall bee in the composition of a platter some emplastic medicaments, the Waxe shall be the last: Contrariwise, if they shall bee almost all liquid things, the Waxe shall be increaced so much as shall bee necessary for the consistence of the platter. The quantity of the Waxe also must bee altered according to.
cording to the time, or the aire, therefore it is fit to leave this to the art and judgement of the Apothecaries. Emplasters are sometimes made of ointments by the addition of waxe, or dry rofine, or some other hard or solid matter. Some would that a handfull of medicaments pounded, should be mingled with one ounce, or an ounce and an halfe of oile, or some such liquor, but for this thing nothing can certainly bee determined: Only in plasters described by the Antients there must bee great care had, wherein bee must bee very well verified, who will not erre in the describing the dofe of them; and therefore wee will here give you the more common forms of plasters.

Empl. de Veno with Mercury.

R. of cham. aneth. de spic. liliacei, an. 3. i. ol. decroco, 3. i. pingued. pordi, 1b. i. pingued. vitii, 1b. 6. euphorb. 5 x. thuris, 3 x. ol. lauris, 3 i. b. rarus uvi, m. vi. pingued. vper. veli ejus loco human., 3 ii. 6. lumbicor. lortor. in vino, 5 ili 6. facci ebuli, emul. anna, 3 ii. schennanthii, backados, masticar. an. m. ii. vini deriferi, 1b. ii. liturg. aurii, 1b. i. te. rebint. clara, 3 ii. fyrus liquid. 3 i. 58. argent. vivi extincti, fo much as the present occasion shall require, and the sicke shall be able to beare, and make up the platter.

To one pound of the platter they doe commonly adde foure ounces of quick-silver, yet for the most part they doe encrease the dofe; as they define the platter should be stronger: the wormes must be wash’d with faire water, and then with a little wine to cleanse them from their earthie filth, of which they are full, and so the frogs are to be wash’d and macerated in wine, and so boiled together to the consumption of a third part, then the squinanth must bee bruised, the feverfew and the fachas cut small, and they being added, to be boiled to the consumption of one pint, and being boiled sufficiently, the decodion is to be infused into twelve hours in the oile of chamomile, dill, lilies, faffron, and the axungies above spoken of; then boile them all with a gentle fire, by and by taking it from the fire, and adde one quart of the decodion above spoken of, then let it to the fire againe that the decodion may bee consumed, and then by degrees add to the rest of the decodion: the oile of spike shall bee referred unto the left, which may give the platter a good smell. Then are added the juices of walwort and enula, which must bee boiled untill they bee wafted away. Afterwards is being taken from the fire, to the composition is added the frankinecne and euphorbium, and white wax as much as shall suffice. When the whole maffe shall coole, then at last is mingled the quick-silver extract, turpentine, oile of bitter almonds, baies, fpike, and white wax as much as shall suffice. When the whole maffe shall coole, then at last is mingled the quick-silver extract, turpentine, oile of bitter almonds, baies, fpike, and white wax as much as shall suffice. When the whole maffe shall coole, then at last is mingled the quick-silver extract, turpentine, oile of bitter almonds, baies, fpike, and white wax as much as shall suffice.

R. curci, 3 ii. bodeleii, maftich. ammon. fyrus liquid. an. 3. i. cer. alb. 1b. 6. tereb. 3 v. medul, crucii vacex, adips anemini, an. 3 i. aellopi, vel si dejus. axung. galini. 3 ix. ol. nard. quantum sitis ad magdalenes formandos. expresiones seada, 3 i. 6. silabani. fous vitul. 3 i. The aellypo. fempon. adips. medulla. ceri. are to bee diffolved together; when they coole, add the ammoniacum diffolved in the decodion of fennegreeke and chamomile, halfe an ounce, and fo much juice of equils, then putt to the fyrax and turpentine, stiring them continually; then adde the bolelium, albatis, maftich, aloes, brought into fine powder, and when they are perfectly incorporated into a maffe, let them bee made up with oleum nardinum into rolls.

D. terebint. 1b. 6. refin. 1b. i. cer. alb. 3 iv. maftich. 6. fol. verben. botanic. pimpinell. an. m. i. The herbes being greene, the tops are to bee cut and bruised in a flone mortar, and boiled in red wine to the consumption of one third part. To the strained liquor adde waxe cut into small pieces, and being diffolvd by the fire; the liquor being consumed put to the rofine, when it shall coole adde the Mafpick powdered, working it with your hands, by which it may bee incorporated with the rest of the things.

R. focii teton. planag. api, an. 16. i. cer. pic, refin. tereb. an. 16. 6. c. fer. empl. the juices are to bee mingled with the waxe being diffolvd, and boiling them until three parts be consumed, adde the rofine and parch, which being diffolvd and hot, must be strained, and then adde the Turpentine, and make up the platter.

We use plasters when we would have the remedy stick longer and firmer to the part.
part, and would not have the strength of the medicament to flye away or exhale too suddenly.

CHAP. XXVIII.

Of Cataplasmes and Pustiffes.

The matter of cataplasmes.

Cataplasmes are not much unlike to emplasters lefe properly so called, for they may be spred upon linnen cloaths and stoups like them, and so applied to the grieved parts. They are composed of roots, leaves, fruits, flowers, seeds, herbes, juices, oiles, fats, narrowces, meales, ro- lines. Of these some must bee boiled, others crude. The boiled are made of herbes boiled tender, and so drawn through an hare sacre, adding oiles and axungia's there to. The crude are made of herbes beaten, or their juices mixed with oile and flower, or other powders appropriate to the part or disease, as the Phy- sitian shall thinke fiet. The quantity of medicines entring these compositions can scarce be defined, for that they must be varied as we would have the composition of a lofter or harder body. Verily they ought to be more goffe and dense when we desire to ripen any thing, but more soft and liquid when wee endeavoure to dicuss. Wee use cataplasmes to alTwagc paine, digeste, dicuss and resolve unnaturall tumors and furculences. They ought to be moderately hot and of softe parts, fo to attract and draw forth; yet their use is suspect by the body being not yet purged, for thus they draw downe more matter into the affected part. Neither must wee use these when as the matter that is to be dicussed is more goffe and earthy, for thus the subtler parts will be oely dicussed, and the grosse remains impact in the part unleffe your cataplasm be made of an equall mixture of things, not only dicussing, but also emollient, as it is largely handled by Galen.

This shall be largely illufrated by examples. As, R. medul. pants, in lade pungni, adde olei chamam. § 6, azung, galin. § 1, sat cataplasm. Or, R. rad. alth. § 1, sol. malv. fuccioni, an. mi. fem. lin. fawne, an. § 1, fucec. ping. an. vii. de- coquantur in aqua, & per stracum transmunitur, addendo olei litor, § 1, far. hord. § 1, axung. porcin. § 1, sat cataplasm. Or, R. far. fab. & orb. an. § 1, pulv. chamam. & melis. an. § 1, ol. irin. & amyg. amar. an. § 1, succi rus. § 6, sat cataplasm. Pultiffes differ not from cataplasmes, but that they usually confite of meales boiled in oile, water, hony, or axungia. Pultiffes for the opening of tumours are made of the flour of barley, wheat, and milke, especially in the affects of the entrails; or else to dry and binde, of the meale of rice, lentiles, or Ovibus with vinegar; or to cleanse, and they are made of hony, the flour of beans and lupines, adding thereto some old oile, or any other oile of hot quality, and so make a dicussing pultis. Alfo anoindine pultiffes may bee made with milke; as thus for example, R. farin. triticam, § 2, misc pauni purifisim. § 1, decoquantur in lade, & sat pulticula. R. farin. hordet. & fab. an. § 1, far. orb. § 3, decoquantur in hydromelete, addendo melis quart. an. olei amyg. amar. § 3, sat pulticula. Wee use pultiffes for the fame purpose as wee doe cataplasmes, to the affids both of the internall and externall parts. Wee sometimmes use them for the killing of worms, and such are made of the meale of lupines boiled in vine- gar, with an Oxes gall, or in a decoction of Worme-wood, and other such like bit- ter things.
Chap. XXIX.

Of Fomentations.

Fomentor fomentation is an evaporation or hot lotion, chiefly used to mollify, relax and allay paine, consisting of medicines having these faculties. A fomentation commonly useth to be moist, being usuall made of the same things as embrocations, to wit, of roots, seeds, flowers, boiled in water or wine. The roots here used are commonly of mallowes, marsh-mallowes, and lilies. The seeds are of mallowes, marsh-mallowes, partly, smallage, line, fennugreek. Flowers are of chamomile, maldote, figges, raifons, and the like: all which are to be boiled in wine, water, or lyce, to the consumption of the third part of the half: as,

Chap. XXX.

Of Embrocations.

Embros or Embrocation is a watering, when as from on high wee (as it were) throwe downe, or some moisture upon any part. This kind of remedy is chiefly used in the parts of the head, and it is used to the cornall future, for that the skull is more thin in that part, so that by the brasaula or breathing places of this future, more open than those of the other futures, the force of the medicine may more easilly penetrate unto the Meninges, or membranes of the braine. The matter of Embrocations is roots, leaves, flowers, feeds, fruits, and other things, according to the intention and will of the Phyitian. They are boyled in water and wine, to the halfe or third part. Embrocations may also be made of Lye or Brine against the cold and humide affects of the braine. Sometimes of oyle and vinegar, or otherwhiles of oyle onely. R. Sel, plaftag, & felan. an.m.i. semi.portul. & curtumb. a III. myrrh. 5. flor. nymph. & ras. 5. fil. decoct. ad lib. sum acris 3. 5. aliæ subeandum sit, et quæ irriterent pars inflammata. In affects of the braine, when we would repercuffle, we often and with good successe use oyle of Ros, with a fourth part of vinegar.

We use Embrocations, that together with the ayré drawne into the body by the Throat, Diastole of the arteries, the fubsider part of the humour may penetrate, and so coole the inflamed part: for the chiefe use of embrocations is in hot affects. Also we use embrocations, when as for fear of an haemorrhagine, or the flying affunder of a broken or dislocated member, we dare nor looke the bandages wherewith the member is bound. For then wee drop downe some decoction or oyle from high upon the bandages.
Chap. XXXI.

Of Epithemes.

What an Epitheme is.

Epitheme, or an Epitheme, is a composition used in the diseases of the parts of the lower and middle belly, like to a fomentation, and not much unlike an embrocation. They are made of waters, juices, and powders, by means whereof they are used to the heart, chest, liver, and other parts. Wine is added to them for the more or less penetration, as the condition of the hot or cold affect shall seem to require; for if you desire to heat, more wine must be added, as in wounding by the cutting of blood, by the corruption of feed, by drinking some cold poyson : the contrary is to be done in a fainting by dissipation of the spirits by feverish heats, also vinegar may be added. The matter of medicines proper to the entrails is formerly described, yet we commonly use the species of electuary, as the species elect. striguntali the liver being affected, and Diamargarion in affections of the heart. The proportion of the juices or liquors to the powders, uses to be this, to every pinte of them 3:1 or 3:6 of thefe, of wine or elle of vinegar 3:1. You may gather this by the following example.

A cordial Epitheme.

R. aqua. longi. boret. an. 3; jucce. jadis. an. 2; pu. ele. di. arg. frigid. 3; citri frond. an. 3; cord. ben. an. 3; cor. mel. an. 3; ac. vini. albi. 3; fras Epithema precede.

Their use.

Epithemes are profitably applied in heetick and burning feavers to the liver, heart, and chest, if to be that they be rather applied to the region of the lungs, than of the heart; for the heat of the lungs being by this means tempered, the drawn in ayr becomes leffe hot in pestilential and drying feavers. They are prepared of humecting, refrigerating, and cordiall things, fo to temper the heat, and recreate the vitall faculty. Sometimes also we use Epithemes to strengthen the heart, and drive there-hence venenate exhalations, lifted or raifed up from any part which is gangrenate or phaeclate. Some cotton, or the like, steeped or moistened with such liquors and powders warmed, is now and then to be applied to the affected enreail; this kinde of remedy, as also all other topick and particular medicines, ought not to be used, unleffe you have first premised generall things.

Chap. XXXII.

Of potentiall Cauteries.

The use of potentiall cauteries.

Hat kinde of Pyroticke, which is termed a Potentiall Cautery, burnes, and cautheth an eschar. The use of these kinde of Cauteries is to make evacuation, derivation, revulsion, or attraction of the humours by those parts whereeto they are applied. Wherefore they are often and with good success used in the punctures and bites of venemous beasts, in a venenous, as alfo in a pestilent Boke and Carbuncle, unleffe the inflammation be great, for the fire doth not only open the part, but also rounds the force of the poyson, cals forth and plentifully evacuates the conjunct matter. Alfo they are good in phlegmaticke and contumacious tumours; for by their heat they take away the force and endeavours of our weake heat. Alfo they are profitably applied to flanch bleeding, to catre or waste the superfluos flesh of ulcers and wens, to bring downe the callous lips of ulcers, and other things too long here to insist upon.

The matter of them.

The materials of these Cauteries are Oake ashes, Pot ashes, the ashes of Tartar, of Thymals or purges, the Figge-tree, the flakes of Coleworts and Beanes, cuttings of
of Vines, as also sal ammoniacum, alkali, axungia vitri, sal nitrum, Roman vitrioll, and the like; for of these things there is made a salt, which by its heat is caustick and escharoticke, like to an hot iron and burning coale; Therefore it violently boles the continuity by eating into the skinne, together with the flesh there-under. I have thought good here to give you divers forms of them.

Take of unquench Lymec extingued in a bowle of Barbours Lye three pounds: The formes of them.

When the Lye is settled, let it be strained, and into the straining put of Axungia vitri, or Sandiver, calcined ArgoL of each two pounds, of Sal nitrum & ammoniacum, of each foure ounces, these things must be beaten into a grudge powder; then must they be boyled over the fire, and after the boyling let them remaine in the Lye for four and twenty houres space, being often stirred about, and then strained through a thick and double linnen cloth, left any of the earthy droffe get thorow together with the liquor. This strained liquor, which is as clear as water, they call vitrioll, and they put it in a bracen Bafon, such as Barbours use, and so set it upon the fire, and as soon as it boyles, they keep it with continual stirring, lest the salt should adhere to the Bafon; the Capitellum being halfe boyled away, they put in two ounces of powdred vitrioll, to hasten the falling of the eschar, and so they keep the bafon over the fire untill all the liquor be almost wasted away, Then they cut into pieces the salt or that earthy matter, which remains after the boyling away of the Capitellum, & with a knife or hot iron spatula forme them into cauteries of such figure and magnitude as they thinke fit, and so they lay them up, or keep them for use in a violl or glasse cloffed, that the ayre get not in: Or,

Take a bundle or sufficient quantity of Bean stalks or huskes, of Cole wort stalks two little bundles, of cuttings of Vines foure bundles, burn them all to ashes, which put into a vsell of river water, so let them infuse for a dayes space, being stirr'd ever now and then; to this adde two pounds of unquench Lymec, of Axungia vitri halfe a pound, of calcined Tarrar two pounds, of sal nitri four ounces, infuse all these, being made into powder, in the foresaid Lye for two or three dayes space, often stirr'ing it, then strain the Capitellum or liquor through a thick cloth until it become cleare. Put it into a bafon, and set it over the fire, and when as the moisture is almost wholly spent, let two or three ounces of vitrioll be added, when the moisture is sufficiently evaporated, make cauteries of that which remains, after the formerly mentioned manner.

Take of the ashes of sound, knotty, old Oake as much as you please, make thereof a Lye; powre this Lye againe upon other freth ashes of the same wood, let this bee done three or foure times, then quench some lime in this Lye, & of these two make a Capitellum, whereof you may make most approved cauteries. For such ashes are hot in the fourth degree; and in like sort the flames, whereof the lime by burning becomes fiery and hot to the fourth degree: Verily, I have made cauteries of Oake ashes only, which have wrought quickly and powerfully. The Capitellum or Lye is thought sufficiently strong, it that an Egg will swimme therein without sinking.

Or, Take of the ashes of Bean stalks three pounds, of unquench Lymec, ArgoL of the ashes of Oake wood, being all well burnt, of each two pounds. Let them for two dayes space be infuled in a yeel full of Lye made of the ashes of Oake wood, and be often thirred up and downe. Let this Lye then be put into another yeel, having many holes in the bottome thereof, covered with strums or straw pipes, that the Capitellum flowing through these strait passages may become more cleare. Let it be put twice or thrice upon the ashes, that to it may the better extract the heat and caustick quality of the ashes. Then putting it into a Barbours bafon, let it over the fire, and when it shall begin to grow thicke, the fire must be increas'd, and cauteries made of this concreate matter.

The following cauteries are the best that ever I made triall of, as those that applied to the arm in the bignesse of a Peafe, in the space of halfe an houre without paine, especially if the part of it letfe be painfull and free from inflammation, eate into the skinne and dese even to the bone, and make an ulcer of the bignesse of ones fingers end, and they leave an eschar so moist and humide, that within foure or five dayes
The cause of the name.

Their description.

The description of Mercury or Angelicall Powder.

days space it will fall away of it self without any 'scarification. I have thought good to call these cauteries Silken or Velvet ones, not onely for that they are like Silke gentle and without paine, but chiefly because I obtained the description of them of a certaine Chymist, who kept it as a great secret, for some Velvet and much entreaty: Their description is this,

Take of the ashes of Beane stalkes, of the ashes of Oakewood well burnt, of each three pounds, let them bee infused in a pretty quantity of river water, and bee often stirred up and down, then add thethereto of unquench lime four pounds, which being quencht, stirre it now and then together for two days space, that the \textit{Capitellum} may become the stronger, then straine it through a thick & strong linnen cloth, & thus straine, put it three or four times upon the ashes, that so it may draw more of the cautieke faculties from them, then Boyle it in a Barbers bason, or else an earthen one well leaded, upon a good Charcole fire, until it become thicker. But a great part of the secret or art consistts in the manner and limit of this boiling; for this \textit{Capitellum} becoming thicke and concreting into falt, must not bee kept fo long upon the fire, untill all the moysiture shall bee vanished and spent by the heatethereof: for thus also the force of the foresaid medicines, which also consistts in a spirittuous substance, will bee much dissipatet and weakened, therefore before it be come to extreme drinke, it shall be taken off from the fire, and when as yet there shall some thicke moysiture remaine, which may not hinder the cauteries from being made up into a forme. The made up cauteries shall bee put up into a glaffe moft closely luted up or stopped, that the ayre may not dissolve them, and so they shall be laid up and kept in a dry place. Now, because the powder of Mercury is necesse to cauteries in the effects and faculty thereof, which therefore is termed \textit{Pulvis Angelicus} for the excellency; therefore I have thought good to give you the description thereof, which is thus:

\textit{R. Auripigmenti citrini, floris aetis, an. 3ii. Salis nitri, \textit{lb}. 8, alumini. vachae, \textit{lbii. vitrioli rom. \textit{lbii}.}} Let them all bee powdred, and put into a Retort, having a large receiver well luted put thereto. Then set the Retort over a Fornace, and let the distillation be made first with a gentle fire, then increased by little and little, so that the receiver may waxe a little reddish.

\textit{R. Argenti vici, \textit{lbii. aqua fortis, \textit{lbii. penantur in phiala, \& sit pulvis, ut sequitur.}} Take a large earthen pot, whereinto put the violl or bolt head wherein the \textit{Argentum vicium} and \textit{Aqua fortis} are contained, setting it in ashes up to the necke thereof, then set the pot over a fornace, or upon hot coales, so that it may Boyle and evapourate away the \textit{Aqua fortis:} neither in the interim will the glasse bee in any danger of breaking, when all the water is vanisht away, which you may know is done when as it leaves smoaking; suffer it to become cold, then take it forth of the ashes, and you shall finde calcined Mercury in the bottome, of the colour of red Lead, separeated from the white, yellow or blacke excremente, for the white that concrettes in the topppe is called Sublimate, which if it should remaine with the calcined Mercury, would make it more painfull in the operation. Wherefore separeating this calcined Mercury, you shall make it into powder, and put it in a braffe vellifell upon fome coales, stirring or turning it with a \textit{spatula} for the space of an houre or two: for thus it will lose a great part of the acrimony and biting, whence it will become leffe painfull in the operation.
Chap. XXXIII.
Of Vesicatories.

Esficative and rubrifying ointments, cataplasmgs, or plasters are made of acrid medicines, which have power to draw forth to the superficies of the body such humours as ly e deep, by exulcerating the skin and causing blisters. Their matter is the same with lepticke medicines, as sinapi, anacardus, cantharides, euphorb, radices scilla, bryan, and the like, which with honey, turpentine, leaven, gum, or rosin, may be made into cataplasmgs, ointments, or plasters; therefore the composition of vesicatories, or rather their consistence differs not from that of hard or soft unguents. Therefore I will give you one example or description of them, which is thus.

\[\text{Chap. XXXIV.}
\]

What vesicative and rubrifying medicines are.

Chap. XXXIV.
Of Collyria.

Collyrium is a medicine proper for the eyes, made of powder finely levigated and ground into the forme of Alcohol, as the Arabians and our Alchymists term it: yet the word in a more general acceptation is used for any liquide medicine, made with liquors and powders, and applied or used to any part. Wherefore collyria are of three kindes, some are moist or liquid, which are properly called collyria; others dry, which are of the same consistence with Trochifces; others have the consistence of hony, or a limiment. The liquid serve for the greater and lesser corners of the eyes; those of the consistence of hony are meet for the apple of the eye, but the dry are to be made into powder, and so blowne into the eyes: also sometimes they are to be dissolved in some juice, or other convenient liquor, that so they may be made into moif collyria.

Therefore collyria have divers ues, and are applied to severall parts according to the intention and counsel of the Physitian: for liquid collyria put into the corners of the eyes doe more readily mitigate the heate of their inflammation, by reason they enter more easilly by the tenuity of their substance, such things as have a more farris consistence adhere more tenaciously, and work more certainly. Moift collyria are made of juices, mucilages, waters of herbes, flowers, seeds, metalline bodies, galls, and other such likey medicines, which are repercussives, resolvers, detersverts, anodines, and the like, according to the nature of the present diseas. Sometimes they are made of juices and distillled waters only; otherwhiles powders...
...and their use.

Powders are preferred to liquors and are mixed with them, together with the white of an egg. Powders are prescribed to 3 ii. and liquors to 3 iv. or 3 v. in medicines for the eyes; but for other parts, as when it is to be injected into the urethra, they may be preferred to the quantity of a pinta. Dry collyria are made of powders exceeding finely beaten or ground, and incorporated with some juice, whence it is that they differ little from Trochices. Wherefore the collyrium album Rhafius is now usually termed a Trochice, and kept in the same manner. Cathartic powders are not applied in the form of a mois collyrium, but in the form of a liniment, that is, incorporated with fat or oil. All these things shall be made more plain by the following examples,

<table>
<thead>
<tr>
<th>A recipe</th>
<th>A collyrium.</th>
<th>A detergent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. aq. plant. &amp; resar. an. 3 ii. album, ovi nunn. bene agitatim, miste, fiat collyrium.</td>
<td>V. aq. resar. &amp; viol. an. 3 iii. trochiob. alb. Rhoceum opio, 3 ii. fiat collyrium.</td>
<td>Or, R. deced. fumag. 3 iii. mucag. fem. lini; 3 ii. mucchar. canis. 3 i. croce. 3 i. fiat collyr. R. rhuris, myrrh. an. 3 ii. tant. prepar. &amp; antimon. lot. an. 3 ii. cum puce cholodium. fiat collyrium in umbra secundo. R. felis perdace. ale tepor. 3 ii. fuccis sambuc. 3 ii. succar. canis. 3 ii. frapp. ref. excipiantur. fiat collyrium.</td>
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We use collyria in wounds, ulcers, fistulae, fistulations, inflammations, and other diseases of the eyes.

Chap. XXXV.

Of Erhines and Sternutatories.

Rhnines are medicines appointed to be put into the nose to purge the brain of its excrementitious humours by the nostrils, or to deter such excrements as are therein, by reason of an eura, polypus, or the like disease. Erhines are either liquid or dry, or else hard, and of the consistence of an emplastr. Liquid rhines, which usually are to purge the head, are made of the juices of herbs, as beets, colclworts, marjoram, pinpermell, hyfiole or balm, or of their decoctions taken alone, or mixed with wine, or syrups, as exymel fistillicium, syrup of hyfiole, roes, or mel anthofatium: sometimes powders are mixed with these liquors, as of pepper, euphorbium, pellitory of Spaine, hore-hound, nigella roman, collyramid, myrrhe, white elbebro, bow-bread, and other like, in a small quantity, to wit, to 3 i. little more or less according to the vehemency of the disease. We will make this more plain by examples.

<table>
<thead>
<tr>
<th>A recipe</th>
<th>A rhine.</th>
<th>A detergent.</th>
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<tbody>
<tr>
<td>R. fuci beta, maioran, brasfl. an. 3 i. depurare, &amp; medicis bullianti cum vini albi, 3 ii. oxymelit, fistili. 3 ii. fiat erhinum. When as you desire to attract more powerfully from the brain, you may dissolve in erhines some purging medicines, as agarick, diaphanicon, fenna, castanum, and the like: hence both allire the diffillation of erhines into such as are meet to purge phlegme, choler, and melancholy. This following example is set downe by Benedetius. R. rad. pyreth. irid. an. 3 i. puleg. calam. orison. an. 3 i. agar. troches. 3 iii. flor. anthos. &amp; strachan. an. 3 i. fato decoctione. colatur. 3 ii. distil. messis anthofatii. fistili. an. 3 iii. fiat caputpurgum. But it is better to this purpose to make use of purging simples, as agarick, turberth, coloquintida, and the like, than of compositions, as diaphanicon, for these make the decoction more thick, and leave fit to enter the passages of the nostrils, and the sieve-like bones, but apt rather there to cause obstruction, and intercept the freedom of respiration.</td>
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</table>
| R. fuci beta, 3 i. aq. fals. & beton. an. 3 ii. pul. robor. 3 iii. piper. & pyreth. an. 3 i. fiat in caputpurgum. Dry erhines that are termed ferumatories, for that they caufe sneezing, are made of powders onely, to which purpose the last mentioned things are used: as also aromaticke things in a small quantity, as to 5 ii. at the most: as, R. maior, nigel. Caryoph. 3 in. bib. an. 3 i. aor. pyreth. & panis porcin. an. 3 ii. euphorb. 3 i. terram dislegetur, & in naves mittetur, aut subficitur. Erhines of the consistence of emplasters, by the Latines vulgarly called Nafafia, are made of the described powders or gums dissolved in the juice of some of the forementioned herbs, incorporated
incorporated with turpentine and waxe, that so they may the better be made into a pyramidal form to be put into the nostrils. As, R. majoram, salve, nigell. 9 ii. pip. The manner of solid erithrae, terturter, & impulvererem redigantur. And then with turpentine and wax as much as shall be sufficient, make them up into Nasalia of a pyramidal or taper fashion. Wee The use erithrae in invertebrate dities of the braine, as the epileptic, fear of blindness, an apoplexy, lethargie, convulsion, the lost sense of smelling: yet we first use general remedies and evacuations, left by sneezing and the like conjunct of the brain for the exclusion of that which is offensive thereto, there should be made a greater attraction of impurity from the subjacent parts. Liquid things must be drawn up into the nostrils warme out of the palm of the hand, to the quantity of 5 8, the mouth being in the interim filled with water, left the attracted liquor should fall up-on the pallat, and so upon the lungs: dry erithrae are to be blown into the nose with a pipe or quill: solid ones must be fattened a thred, that they may be drawn forth as need requires, when as they are put up into the nostrils. The morning (the belly being empty) is the fittest time for the use of erithrae. If by their use the nose shall be troubled with an itching, the paine thereof must bee mitigated with womans milke, or oyle of violettes. The use of attractive erithrae is hurtfull to such as are troubled with dites of the eyes, or ulcers in the nose, as oft times falls out in the Lues venerea: wherefore in this case it will bee best to use Apophlegmatismes, which may divert the matter from the nose.

CHAP. XXXVI.

Of Apophlegmatismes or Masticatories.

Apophlegmatismes in Grecke, and Masticatories in Latin, are medicines which kept or held in the mouth and somewhat chawed, doe draw by the mouth forth of the braine excrementitious humour, especially phlegme: now they are chiefly made fowre manner of wates; the first is The differences when as the medicines are received in hony or waxe, and formed into pills, and so given to chew upon. The second is when as the same things are bound up in a fine linen cloth, to be held in the mouthes. The third is when as a decocation of acride medicines is kept in the mouth for a pretty space. The fourth is when as some acride medicine, or otherwise drawing phlegme, as pettory of Spaine, mastich, and the like, is taken in its lefe to the quantity of a halfeell or, and so chawed in the mouth for some space. The matter of masticatories is of the kinde of acrid medicines, as of pepper, mustard, hyyslople, ginger, pettory of Spaine, and the like: amongst which you must make choice chiefly of such as are not troublesome by any ingrate stuff, that so they may be the longer kept in the mouth with the leffe offence & loathing. Yet masticatories are sornetimes made of harth or acerbe medicines, as of berberies, the stomes of prunes or cherries, which held for some space in the mouth, draw no leffe force of phlegme than acride things; for the very motion and rolling them up and down the mouth attracts, because it heats, compreftes, & expresseth: the quantity of the medicine ought to bee from 3 8, to 3 8: as, R. pyreth, flaphysag. an. 3 8, mastich. 3 6, pulvere centr er involucrum nodulus in masticatoria. Or, R. caryophyl. sinap. an. 51, euphorb. 3 ii. piper. 3 6, excipientur melie, & sants pasilis pro masticatoria. R. hyyslop. thym. origan. salve. an. p. i. boile them in water to wath the mouth withall. Or, R. caryophyl. sinap. an. 5i, pyreth. pip. an. 3 6, flaphysag. 3 ii. mastich. 3 6, excipientur, sants pasilis pro masticatoria. We use masticatories in old dities of the braine, diminuite of the fight, deafneffe, pultes of the head and face, and sometimes to divert the excrements which runne to the nose being ulcerated.

Masticatories are very hurtfull to such as have their mouths or throats ulcerated, To whom hurtfull as alio to them whose lungs are subject to inflammations, deftitutions and ulcers: for then erithrae are more profitable to derive the matter of the diseafe by the nostrils.

XXX

For
For though the humour drawn from the braine into the mouth by the means of the masticatory, may bee thence cast forth by coughing and spitting, yet in the interim nature will bee so inured to that passage for the humour, so that it will run that way when as wee sleepe, and fall downe upon the parts thercunder, weake either by nature or by accident.

The time fittest for the use of Apophlegmatismes is the morning, the body being first purged: if any ingratefull tafte remain in the mouth, or adhere to the tongue by using of masticatories, you shall take it away by washing the mouth with warm water, or a decoction of liquorice and barly.

Gargle or gargarisme is a liquid composition fit for to wash the mouth and all the parts thereof, to hinder defluxion and inflammation, to heale the ulcers which are in those parts, to allwage paine. Their composition is twofold, the first is of a decoction of roots, leaves, flowers, fruits, and seeds fit for the diseafe; now the decoction is to be made either in faire water alone, or with the admixture of white or red wine, or in the decoction of liquorice and barly, or of pectorall things, as the intention of the Phyfitian is to repell, coole, or hinder inflammation, as in the tooth-ache caufed by matter which is yet in motion, to difcufe, as in the tooth-ache already at the height; or to cleanse, as in the ulcers of the mouth; or to dry and binde, as when it is fitte to heale the ulcers already cleansed.

There is a gargle or gargarisme made without decoction, which is, when as wee make them either of distilled waters onely, or by mixing them with syrups, mucilages, miele, the whey of Goats miele carefully strained. There are mixed sometimes with a decoction, distilled waters and mucilages, meli rosimum, oxymel simplicis, dianamum, dianuncan, biet a piara, oxyfacchara, syrup de rosi sicus, syrups acceforius, and other things, as the present case shall seem to require, as aloine, balanfis, myrthe, elbanamum, ginger, pepper, cinamon, dry roses, and many fuch things, even fo that oft times there enter into gargles fuch medicines as have force to draw from the braine, as pellitory of Spaine, carthamus, turbitb, and fuch things as have no bitterneffe, which is the caufe that neither agrick nor colorquintida ought to enter into gargles.

The way of making of gargarismes is without decoction, which is, when as wee make them either of distilled waters onely, or by mixing them with syrups, mucilages, and other things. Sometimes they are made with a decoction, distilled water, and mucilages, meli rosimum, oxymel simplicis, dianamum, dianuncan, biet a piara, oxyfacchara, syrups acceforius, and other things, as the present case shall seem to require, as aloine, balanfis, myrthe, elbanamum, ginger, pepper, cinamon, dry roses, and many fuch things, even fo that oft times there enter into gargles fuch medicines as have force to draw from the braine.

The quantity of liquor for a gargrisme is commonly from i to ii. mixe therewith some iii. or iv. of syrups, but put in powders sparingly, as some iii. Alome may sometimrs bee put in to iii. of mucilages be extraced out of ii. of seeds: let these serve for some examples.

What a gargle is.

The differences thereof.

Their matter.

An eftimgem gargle.

An unodine gargle.

A deterrife.

Chap. XXXVII.

Of Gargarisme.

Chap. XXXVII.

Of Gargarisme.

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Of Gargarisme.
Entifices are medicines prepared and serving divers waies for to cleanse, whiten, and fatten the teeth; for from their ufe they take their name. Of thefe some are dry, other fome moist: of the dry some have the forme of opiats, others of powders giffly beaten, but the moist are commonly made by diſtillation: the matter of dry dentifices is taken from detergent and drying things, such as are coral white and red, harts-horne, fcurtles bones, alone, cryftall, pumice, fal nitre, myrhe, frankincenfe, balaufta, acornes; all forts of thels of fiftes: all thefe are to bee made into powder either by burning, or without it, for fcurtles bones burnt caft forth a finking and unpleafant smell. To thefe for smell fake are added certaine aromaticke things, as cinamon, cloves, nutmegs, and the like: fuch powders if mixed with fome fyrufe, as oxymelfeullitium, or with mucilage of gum arabicke and tragacanth, will become opiates, to be made into a pyramidal forme of fome fingers length, round or fquare, and harpe pointed, that dried they may ferve for dentifices.

Sometimes emollient roots are boiled with falt or alone, that dried againe they may be used for dentifices: moift ones are made of drying herbs, diſtillcd together with drying and aftringent things.

All the differences shall appeare by the following examples. Re, lepidis fong. pu. micis, & cornu cervi ufi. an. 5 ii. corai. rub. & cryftall. an. 5 i. alum. & fal. ufi. an. 5 i. &. Dentifico- cinamon. & carpho. refar. rub. pulver. an. 3 ii. fiat pulvis pro dentificio. Or, u. ofis sapia, 3 &. mafchites, corai. rubri ufi, an. 3 ii. cornu cervi ufi, 3 i. &. aluminis, carbonis, coriander, an. 5 i. cinamonomi, 3 i. di. fiat pulvis pro dentificio. Or, u. ofis sapia, alum. & salis ufi, an. 3 i. cryftall, glandium, myrhe, thuriu. an. 3 ii. corticic grantorum, ma. cinamon, an. 3 i. fiat pulvis qui excipitur mucagine gummi tragacanth. & formen- tur pyramides longe, fquare, pro dentificio. Or, Re. rad. malve junioris, & bimalvea, an 3 ii. cognatnr in aqua falfa aut alumina. deinde fcentur in fervo pro dentificio. Re. falis, 3 vi. alumin. 3 ii. thuriu. mafchites, sang, dracon. an. 3 i. aquae ref, 3 vi. diſtil- lentur in alembico vitreo pro dentificio.

Dentifices are not onely good to polifh, cleanfe, and ftrengthen the teeths, but they ferve als oft times ufe them for the tooth-ache, the diseafe of the mouth, and ulcers of the gummes. You may ufe them in the morning, before and after meet.

The antients, of lentiike wood made themselves tooth-picks, and fuch devices to ftrengthen their loofe teeth, which als so at this day is in ufe with thofe of Languedock, with whom this wood is plentifull, fo that it may be brought thence for the ufe of Noblemen and Gentlemen; myrhe may als o ferve for this fame ufe, and any other aftringent wood.

Our people commonly ufe the stalks of fennel, yet have they no faculty to fatten the teeth, but their smell is gratefull.


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ver, heart and other parts must be made according to the figure of those parts. Their matter is usually taken from whole seeds fried in a frying-pan, or made into powder, there are sometimes added roots, flowers, fruits, rinds, cordial powders, and other dry medicines, which may be easily brought into powder, and conduct to the griefed parts; the quantity is different according to the magnitude of the affected parts; in the books of practitioners it is commonly found prescribed from 3 to 8, sometimes flowers, and dry herbs are preferred by handfulls and peguls: and here there is need of an artificial conjunct to conceive and appoint a fit quantity of powders: but let us give you some examples.

A quill for the
flomacke.
R. sizaris maerti, p. i. malloch. 3 ii. cordali rub. 5 iii. sem. anisii, & fanic. an. 3 ii. macc. moccum, 5 i. sammitit, orbtinta, & mentha. an. m. triis omnium. sat fasciculus cowanus & compositus pro ventriculo.

A cap for a cold
head.
L. ofar. rub., p. i. maffich. 3 ii. salis, 5 ii. rofar. rub. flor. vorifmarini, flachades, can- ryph. an. m. ii. sol. beton. & sol. an. 3 iii. triis omnium sat cucumum intersafa & cale- folis fuo interstis, & fandaracha exculorum, capitis appendat.

A quill for the
heart.
L. flor. borag. buglos. & violar. an. pili. corvis, citrit. ficci, macc. ligati allus. rafara e- bories, an. 5 iii. offis decori cervi, croci, an. 3 ii. sol. melis. m. p. pulveris diamaba. 3 ii. conritis omnium sat fasciculus & ferior pro corde. proverbas & aqua aebieta.

Wee use bagges for the strengthening of the noble parts, as the braine, heart, liver, as also for those lefte noble, as the flomacke, spleene, breast, lastly for dificuf- fing flatulenties in what part soever, as in the collick and in a baleard pleuris proceeding from flatulenties. The powders must bee drawed upon carded bombe, that they runne not together, and then they must bee fewed up or quilted in a bagge of linen or taffaty.

Wee often times moisten these bagges in wine or distilled water, and sometimes not with the substance thereof, but by the vapour only of such liquors put into a hot dish: thus oftentimes the bagges are heated by the vapour onely, and oft times at the fire in a dish by often turning them. These, if intended for the heart, ought to bee of crimson or skarlet flile, because the skarlet berry, called by the Arabians Kerme, is said to refresh and recreate the heart. Certainly they must alwaies be made of some fine thing, whether it be linen or flile.

Of Fumigations.

Suffltus or fumigation is an evaporation of medicines having some viseous and faty moisture: of fumigations some are dry, other fome moist, the dry have the form of trochifes or pills: their matter ought to bee faty and visuous, so that it may fend forth a fmoake by being burnt: such are ladanum, myrrhe, maltick, pitch, waxe, rolane, turpentine, cationum, fyrax, frankincence, odorum, and other gummes, which may bee mixed with convenient powders: for they yeeld them a body and firme consistence, the fumigations that are made of powders only, yeeld neither so strong nor long a fume.

The quantity of the powders must bee from 3 to 8, but the gummes to 5, as R. fandaracha, mactickes, rofar. an. 3 i. benoisini, galang. an. 5 iii. terebinthina excri- piantur. & fiant trochifes, quam incensit suffumguntur tegumenta capitis. L. maccasin, 3 ii. edditt. myrrha. fyrac. an. 3 i. cere. sol. & terebinth. quad sufficit, fiant formu- la pro suffumgione. 2 ii. cinnamaria. 3 ii. fyracis & benoisini. an. 3 ii. cum terebinth. fiant trochifes pro suffumgione per emulsionem.

Wee use fumigations in great obstructions of the braine, uerses of the lungs, the nafumes, an old cough, paines of the sides, wombe, and the diseases of some other parts: sometimes the whole body is fumigated, as in the cure of the Lucs venena to procure sweat; sometimes onely fome one part wherefo fome reliques of the Lucs apheres;
adheres: such fumigations are made of 

\( \text{herbes quincht in vinegar, water, \text{vita}, or the like liquors, to raise a } \text{humid vapour.} \)

We oft times use this kind of fumigation in overcoming feirrous afefts, when as we would cut, diffuse, penetrate deep, and dry: take this as an example thereof.

\( \text{The manure of a most } \text{fumigation.} \)

\( \text{Fumes of the decoction of herbes doc very little differ from fomentations properly so called; for they differ not in the manner of their compofure, but only in the application to the affected parts: therefore let this be an example of a humid } \text{fumigation.} \)

\( \text{We ufe these half-baths in affeds of the kidncys, bladder, womb, fundament, and lower belly, or otherwife when as the patient by reaEon of weaknesse and feare of dissipating the spirits, cannot suffer or away with a whole bath. The manner of using it is thus: fill some bagges with the boiled herbes, or other parts of plants, and caufe the patient to fit upon them; yet in the interim keep the vapours from the head, lefte they should offend it, by cafting over it a linnen cloath, or else let him not enter thereunto until the vapour be exhaled.} \)
Baths are nothing else than it were a fomentation of the whole body, both for preserving health, and the cure of diseases: this is a very commodious form of medicine, and among other external medicines much celebrated by the Greek, Arabian, and Latine Physicians. For a bath, besides that it digests the acid humors, and foamy excretions lying under the skin, mitigates pains and weariness, and corrects all excess of distemper; moreover, in the cure of fevers, and many other contumacious and invertebrate diseases it is the chief and last remedy, and as it were the refuge of health, stored with pleasing delight. Baths are of two sorts, some natural, others artificial: natural, are those which of their own accord, without the operation or help of art, prevail; or excel in any medicinal quality. For the water which of itself is devoid of all quality that is perceivable by the taste, if it chance to be drained through the veins of metals, it furnishes and impregnates itself with their qualities and effects: hence it is that all such water excels in a drying faculty, sometimes with cooling and attrition, and otherwhiles with heat and a difficult quality. The baths whose waters being hot or warm, do boil up, take their heat from the cavities of the earth and mines filled with fire, which thing is of much admiration whence this fire should arise in subterranean places, what may kindle it, what feed or nourish it for so many yeeres, and keep it from being extinct. Some Philosophers would have it kindled by the beames of the sunne, others by the force of lightnings penetrating the bowels of the earth, others by the violence of the air vehemently or violently agitated; no other wise than fire is strucke by the collision of a flint and steel. Yet it is better to refere the cause of so great an effect unto God the maker of the Universe, whose providence piercing every way into all parts of the World, enters and governes the secret parts and passages thereof. Notwithstanding they seeme to have come nearest the truth, who referee the cause of heat in waters unto the flore of brimstone contained in certaine places of the earth, because amongst all minerals it hath most fire and matter fit for the nourishing thereof. Therefore to it they attribute the flames of fire which the Sicilian mountain Etna continually sends forth. Hence also it is that the most part of such waters smell of Sulphur, yet others smell of Alom, others of nitre, others of Tarre, and some of Coprosof.

Now you may know from the admixture of what metalline bodies the waters acquire their faculties by their taffe, fent, colour, mud, which adheres to the channels through which the water runnes, as also by an artificial separation of the more terrestrial parts from the more fabile. For the earthy droffe which subsides or remains by the boiling of such waters, will retain the faculties and substance of Brimstone, Alum, and the like minerals; besides also, by the effects and the cure of these or these diseases you may also gather of what nature they are. Wherefore we will describe each of these kinds of waters by their effects, beginning first with the sulphureous.

Sulphureous waters powerfully heat, dry, resolve, open, and draw from the center unto the surface of the body; they cleanse the skin troubled with scabs & pustules; they caese the itching of ulcers, and digest & exhaust the caues of the gout; they help pains of the collicke and hardened spleens. But they are not good to be drunk, not only by reason of their ungratefull smell and taste, but also by reason of the malicious effe of their substance, offensive to the inner parts of the body, but chiefly to the liver.

Aluminous waters taste very attritifically, therefore they dry powerfully; they have no such manifold heat, yet drunke, they loose the belly: I believe by reason of their heat and nitrous quality they cleanse and stay defluxions; and the courses flowing too immoderately; they also are good against the tooth-ache, eating ulcers, and the hidden absceses of the other parts of the mouth.

Salt
Salt and nitrous waters shew themselves sufficiently by their heat: they heat, dry, bind, cleanse, diffuse, attenuate, reftit purefaction, take away the blackenefe company of bruises, hale scabby and malignant ulcers, and helpe all edematous tumors.

Bituminous waters heat, digife, and by long continuance oftent the hardened firmness, they are different according to the various conditions of the bitumen that they waft and partake of the qualities thereof.

Braffen waters, that is, such as retain the qualities of brasse, heat, dry, cleanse, digest, cut, bine, are good against eating ulcers, fistula's, the hardenefe of the eyelids, and they waft and eat away the fleshy excrescences of the nose and fundament.

Iron waters cooie, dry, and bind powerfully, therefore they helpe abscifeses, of iron hardened milis, the weakenes of the stomacke and ventricle, the involuntary shedding of the urine, and the too much flowing terms, as alfo the hot diemper of the liver and kidneys. Some fuch are in the Lucan territory in Italy.

Lead-en waters refrigerate, dry, and performe fuch other operations as lead doth: Of leaden the like may bee faid of thofe waters that flow by chalk, plaster, and other fuch minerealls, as which all of them take and performe the qualities of the bodies by which they paffe.

Hot waters or bathes helpe cold and moist diseafes, as the Paffie, convulfion, the stiffeneffe and attractions of the nerves, trembling palpitations, cold distillations upon the joints, the inflating of the members by a droppie, the jaundife by obftuction of the gall, tough, and cold humour, the paining of the fides, collick, and kidneys, barrenneffe in women, the suppression of their courses, the fuffocation of the womb, caufe lefse wearineffe, thofe difafes that fpoile the skinne, as eczamas, the lepofite of both forts, the feabbe, and other difafes arifing from a groife, cold and obftucting humour, for they provoke fweats.

Yet fuch muft fhunne them as are of a cholericke nature, and have a hot liver, for they would cafe a puflicia and droppie by overheating the liver. Cold waters or baths helpe the hot diemper of the whole body & each of the parts thereof, and they are more frequently taken inwardly than applied outwardly: they helpe the laxenefe of the bowels, as the refolution of the retentive faculty of the stomacke, entralles, kidneys, bladder, and they alfo add strength to them. Wherefore they both temper the heat of the liver, and alfo strengthen it, they lay the hair in, the Diarrhea, Dyfentery, Courses, involuntary shedding of urine, the Gonorrhea, Sweats, and Bleedings. In The spaw this kinde are chiefly commendable the waters of the Spaw in the country of Liege, which inwardly and outwardly have almoft the fame faculty, and bring much benefit without any inconvenience, as thofe that are commonly used in the drinks and broths of the inhabitants.

In imitation of natural baths, there may in want of them be made artificiall ones, by the infuling and mixing the powders of the formerly described minerealls; as, Brimfone, Alume, Nitre, Bitumen: also you may many times quench in common or raine water, iron, braffe, silver and gold heated red hot, and fo give them to be drunk by the patient, for fuch waters doe oftentimes retain the qualities and faculties of the metals quenched in them, as you may perceive by the happy efficacie of fuch as have used them against the Dyfentery.

Besides thefe there are alfo other bathes made by art of simple water, sometimes without the admixture of any other thing, but otherwhiles with medicinall things mixed therewith, and boild therein. But after what manner foever these be made, they ought to be warme, for warm water humefts, relaces, mollifies the folid parts, if at any time they be too dry, hard, and tenfe; by the cicatricious heat it opens the pores of the skinne, digifes, attracts, and difafes fuliginous and acid excrescences remaining betweene the fleshe and the skinne. It is good againft fun-burning and wearineffe, whereby the fimilar parts are dried more than is fit. To conclude, whether we be too hot or cold, or too dry, or be nofaueous, we find manifeft profite by baths made of sweet or warme water, as thofe that may supply the defect of frictions and exercices: for they bring the body to a mediocrity of temper, they encreafe and ftrengthen the native colour, and by procuring fweet difafes flautelencies; therefore they are
very useful in hectic fevers, and in the declension of all fevers, and against rav-ving and talking idly, for they procure sleep. But because water alone cannot long adhere to the body, let oile be mixed or put in them, which may hold in the water, and keep it longer to the skinne.

These baths are good against the inflammations of the lungs and sides, for they mitigate pain, and help forward that which is supplanted to exclusion, when as general remedies according to art have preceded, for otherwise they will cause a greater defluxion on the afflicted parts: for a bath (in Galen’s opinion) is profitably used to dis-eases when the morbidick matter is concocted. To this purpose is chosen rain water, then river water, so that it be not muddy, and then fountaine water; the water of standing lakes and fennes is not approved of, for it is fit that the water which is made choice of for a bath of sweet water, should bee light and of subtle parts, for baths of waters which are more than moderately hot or cold yield no such commodi-ty; but verily they hurt in this, that they flut up or clofe the pores of the body, and keepe in the fuliginous excrements under the skinne; other baths of sweet or fresh water consist of the same matter as fomentations doe, whence it is that some of them relaxe, others mitigate paine, others cleane, and other some procure the courses, that is compounded of a decoction of ingredients or plants having such op-erations. To these there is sometimes added wine, other whiles oile, sometimes fresh butter or milke, as when the urine is stoppeth, when nephriticke paines are vio-lent, when the nerves are contracted, when the habite of the body waftes and wrin-kles with a hecitcke dryneffe, for this corrupation is amended by relaxing things, but it is watered, and as it were fatted by humecting things, which may penetrare & tran-fuse the oily or fatty humidity into the body thus rarified and opened by the warm-ness of a bath.

Anodine baths are made of a decoction of medicines of a middle nature, such as are temperate and relaxing things, with which wee may also sometimes mixe resolv-ing things; they are boiled in water and wine, especially in pannes of the collick proceeding from vitreous phlegme, or groffie and thickie flatulencies contained or shut up in the belly, kidneys, or wombe. In such baths it is not fit to sweat, but onely to fit in them so long until the bitterneffe of the paine be affwaged or mitigated, left the powers weakened by paine, should bee more resolved by the breaking forth of sweat: emollents are sometimes mixed with gentle detergents, when as the skin is rough and cold, or when the feailes or crust of scabs is more hard than usual, then in conclusion we must come to strong detergents and driers, lastly to dry ing and formewhat astringent medicines, to strengthen the skinne, that it may not yield it felfe to easie and open to receive defluxions. By giving you one example the whole manner of prescribing a bath may apperear.

Why we must not continue in the bath till we sweate.

A mollifying & anodine bath.

Cautions to bee observed in the use of baths.

The morning is a fit time for bathing, the stomake being fasting and empty, or fixe
fixe hours after meat, if it be requisite that the patient should bath twice a day, other- 
wife the meat yet crude would be enchafted by the heat of the bath out of the f matrimonc into the veins and habiture of the body. Many, of all the seafons of the yeere 
makc choice of the spring and end of summer, and in these times they chufe a cleare 
day, neither troubled with stormy winde, nor too harpe an aire. As long as the 
patient is in the bath, it is fit that he take no meate, unlefe peradventure to comfort 
him he take a little bread moistened in wine, or the juice of an orange, or some 
damaskc prunes to quench his thirst; his strength will fliow how long it is fit that he 
fhould lay in, for he must not lay there to the reolution of his powers, for in baths 
the humide and spiritious substance is much diffipated. Comming forth of the bath, 
they muft prefently get them to bed, and be well covered, that by sweating, the ex- 
crement,drawne unto the skinne by the heat of the bath may break out: the fweat 
cleaned, let him use gentle frictions, or walking, then let him feede upon meat of 
good juide and easie digestion, by reafon that the futomake cannot but be weakened 
in some fort by the bath.

That quantity of meat is judged moderate, the weight whereof fhall not oppreffe 
the futomake: venery after bathing muft not be used, becaufe to the reolution of 
the spirits by the bath, it addes another new caufe of further spending or diffipating 
them. Some with thole that use the bath by reafon of fome contraction, paine, or 
orther affefts of the nerves, prefently after bathing, to dawe or blemire the af- 
fefted nervous parts with the clay or mudde of the bathe, that by making it up as it 
were in this paftc, the virtue of the bath may worke more effe(ually, and may more 
throughly enter into the affefted part.

These cautions being diligently obferved, there is no doubt but the profit by 
bathes will be great & wonderfull: the fame things are to be obferved in the use of 
Stoves or Hot-houjes, for the use and eftett of baths and hot-houfes is almost the 
same, which the antients therefore used by turne, fo that comming forth of the bath 
they entered a ftove, and called it alfo by the name of a bath, as you may gather from 
sundry places of Galen in his Methodus med, wherefore I thinke it fit in the next 
to speake of them.

Chap. XLIII.

Of Stoves or Hot-houjes.

Toves are either dry or moift: Dry, by raising a hot and dry airy 
exhalation, to impreft their faculties in the body, that it thereby 
waxeth hot, and the pores being open, runnes down with fwear. 
There are sundry waies to raise fuch an exhalation: as Paris, and 
whereover there are floyes or publique hot-houjes, they are rai- 
fed by a cleere fire put under a vaulted fornace, whence it bei^g 
diffu ded, heats the whole roome, 

"Alfo you may put red hot cogle ftones or bricks into a tubbe, having first laid the 
bottom thereof with bricke or iron plates, and fo feta feat in the midft thereof, 
wherein the patient lying, well covered with a canopy drawn over him, may re- 
"ceive the exhalation arifing from the ftones that are about him, & fo have the benefit 
fweating: but in this cafe we muft oft looke to and fee the patient, for it fometirnes 
happens that fome, neglected by their keepers otherwise employed, becomming 
faint, and their fenfe failing them by the diffdion of their fpirits by the force of 
the hot exhalation, have funke down with all their bodies upon the ftones lying un- 
der them, and fo have beene carried halfe dead and burnt into their beds. Someal- 
fo take the benefit of fweating in a fornace or oven, as foonc as bread is drawn out 
thereof. But I doe not much approve of this kinde of fweating, because the patient 
cannot as he will, much leffe as he pleafeth, lye or turne himfelfe therein.

How to order 
the patient 
comming forth of the baths.

Humide
Humid stoves or sudatories are those wherein sweat is caused by a vapour or moist heat: this vapour must be raised from a decoction of roots, leaves, flowers, and seeds, which are thought fit for this purpose, the decoction is to be made in water or wine, or both together. Therefore let them all be put into a great vessel well luted, from the top of whose whole cover iron or tinne pipes may come into the bathing tub standing neere thereto, betweene the two bottomes thereof, by means whereof the hot vapour may enter thereinto, and diffuse it selfe therein. Now it is fit the bathing tub should bee furnished with a double bottome, the one below and whole, the other somewhat higher and perforated with many holes, whereupon the patient sitting may receive a sudorificke vapour over all his body: now this vapour, if at any time it become too hot, must bee tempered by opening the hole, which must for the same purpose be made in the top of the pipe, that so it may be opened and shut at pleasure. In the interim the tub shall bee clofeely covered wherein the patient sits, hee putting forth onely his head, that so hee may draw in the coole aire. In defect of such pipes, the herbs shall bee boiled by themselves in a caldron or kettle, and this shall bee let thus hot into the bathing tubbe at the patients feet, and so by casting into it heated stones, a great and sudorificke vapour shall be raised.

The delineation of a bathing Tubbe, having a double bottome, with a vessell near the bero, with pipes comming therefrom, and curving betweene the two bottomes of the Tubbe.

Chap. XLIV.

Of Fuci, that is, soaks, and such things for the smoothing and beautifying of the skinne.

His following discourse is not intended for those women which addicted to filthy lusts, seek to beautifie their faces, as baits and allurements to filthy pleasures: but it is intended for those onely, which the better to restraine the wandring lusts of their husbands, may endeavour by art to take away those spots and deformities which have happened to fall on their faces either by accident or age.

The colour that appeares in the face, either laudible or illaudible, abundantly thewes the temper both of the body, as also of those humourst that have the chiefes dominion therein: for every humour dyes the skinne of the whole body, but chiefly of the face, with the colour thereof: for choler bearing fway in the body, the face lookes yellowish; phlegme ruling, it lookes whitish or pale; if melancholy exceed, then blackish or sware; but if blood have the dominion, the colour is frefh and red. Yet there are other things happening externall which change the native colour of the
the face, as sun-burning, cold, plearese, sorrow, fear, watching, fasting, paine, old diseases, the corruption of meats and drinks: for the flowing colour of the cheeks is not only extinguished by the too immoderate use of vinegar, but by the drinking of corrupt waters the face becomes twine and pale.

On the contrary, laudable meats and drinks make the body to bee well coloured and comely, for they yield good juice, and consequently a good habite. Therefore if the spots of the face proceed from the plenitude and ill disposition of humours, the body shall bee evaporated by blood-letting: if from the infirmity of any principal bowell, that must first of all bee strengthened; but the care of all these things belongs to the Physician: we here only seek after particular remedies which may smooth the face, and take away the spots, and other defects thereof, and give it a laudable colour.

First the face shall be washed with the water of lilly flowers, of bean flowers, waters whereunto the face is not only excinguished by the too immoderate use of vinegar, but by the drinking of corrupt waters the face becomes swolne and pale. On the contrary, laudable meats and drinks make the body to bee well coloured and comely, for they yield good juice, and consequently a good habite. Therefore if the spots of the face proceed from the plenitude and ill disposition of humours, the body (hall bee evacuated by blood-letting; if from the infirmity of any principal bowell, that must first of all bee strengthened; but the care of all these things belongs to the Physician: we here only seek after particular remedies which may smooth the face, and take away the spots, and other defects thereof, and give it a laudable colour.

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How to paint the face.

When the face is freed from wrinkles and spots, then may you paint the cheeks with a rose and flourishing colour: for of the commixture of white and red ariseth a native and beautifull colour: for this purpose take as much as you shall think fit of balsam, and alchymet steep them in alum water, and therewith touch the cheeks and lips, and so suffer it to dry in: there is also Spanish red made for this purpose: others rub the mentioned parts with a bees skinne dyed red: moreover the friction that is made by the hand only, causeth a pleasing redness in the face, by drawing thither the blood and spirits.

Chap. XLV.

Of the Gutta Rosacea, or a fiery face.

His treatise of Fuci puts me in minde to say something in this place of helping the preternatural rednefe which pitcheth the nose and cheeks, and oft times all the face besides, one while with a tumour, other whiles without, sometimes with pustles and scabs, by reason of the admixture of a nitrous and adust humor. Practitioners have termed it Gutta rosacea. This flame more and more and more ugly in winter than in summer, because the cold closeth the pores of the skinne, so that the matter contained thereunder is pent up for want of inspiration, whence it becomes acrid and biting, so that as it were boiling up, it lifts or raiseth the skinne into pustles and scabs; it is a contumacious disease, and of times not to be helped by medicine.

For the general method of curing this disease, it is fit that the patient abstaine from wine, and from all things in generall that by their heat inflame the blood, and diffuse it by their vaperous subftance: he shall sunehe hot and very cold places, and shall procure that his belly may be soluble, either by nature or art. Let blood first be drawn out of the bajilica, then from the vena femina, and lastly from the vein of the nose. Let ecchymes be applied to sundry places of the face, and cupping glases with scarification to the shoulords.

For particular or proper remedys, if the disease be inverteate, the hardnefe shall first be softened with emollient things, then assauffied with the following ointments, which shall be used or changed by the Chirurgian as the Phystian shall think fit.

B. facet citri, | iii. ceruf. quantum suffeit ad cum infusandum, argenti vivi cum salis & sulphure vivi extinti, | iii. incorporantur simul, & fiat unguentum.
B. boraci, | ii. sarini, iexer. & farab. an. | iii. caph. | iii. cum melle & succe cepserant trochis: when you would use them, dilOLVE them in rofe and plantaines water, and spread them upon linnen cloaths, and fo apply them on the night time to the affected parts, and so let them be oft times renewed.
B. unguenti citrini recentem differenfantium, | ii. sulphuris vivi, | iii. cum medicino olei semi. cucurb. & succi limonium, fiat unguentum; with this let the face be anointed when you goe.
go to bed, in the morning let it be washed away with rose water, being white by reason of bran infused therein: moreover, sharp vinegar boiled with bran and rose water, and applied as before, powerfully takes away the redness of the face.

B. cerns. & libit vagr. aur. sulpheris vivi pulverisati, an. 5 lb., ponentur in phiala cum acet. & aqua foramin: chinen cloths dipped herein shall be applied to the face on the night, and it shall be washed in the morning with the water of the infusion of bran: this kind of medicine shall be continued for a month.

B. funginis tauri, 5 lb. butyri recentis, 5 lb., fus distillatio, utatur. The liquor which is distilled for the first dates is troubled and stinking, but the second, it commeth clearer and well smelling. Some boile bran in vinegar and the water of water lilies, and in this decoction they dissolve of sulphur and camphire a fit proportion to the quantity of the decoction, and they apply cloths moistened in this medicine to the face in the evening.

B. album, ov. it. ii. aqua ref. § i. succt plantag. & lapath. acut. an. 5 lb. subl. To dry up the putties.

B. rad. liliorum sub cineribus colorum, § iv. pilsillo sults, & foctoae tracistis, adde butyri recentis, & asxung. porci, lotae in acet. an. § i. sulpheris vivi, § iii. camphor. § iii. succi limonum quantum sufficit, malaxentur simili & slated ungumentum. B. latis virginis, § iv. 5 lb. aluminis, § iii. sulpheris vivi, § i. succi limonum, § vi. salis com. 5 lb. let them all be distilled in a glass alembicke, and the water kept for the forementioned uses.

B. lapath. acut. plantagin. & apsphodel, an. § i. oles vitiel. ovor. § i. terebenth. venet. § i. succi limonum, § iii. aluminis combus. § i. argenti vivi extint. § i. oles litiorum, § β. tantantr or insanions morio plumbeae, adde, sub suum argenti, ovor. numo mortario adhuc ex grati. The juice of onions beaten with salt, or the yelkes of egges are good for the same purpose.

For staying and killing of Ring-wormes and Tettars, the leaves of hellebore beaten with vinegar are good, the like of the fig tree is good of itself, as also those of the spurges, or mustard dissolved in strong vinegar with a little sulphur. Or,

B. sulpheris, calcanti, & aluminis, an. § i. maceretur in acet. soles, tracistis. per litterum, apply the pressed juice. Others macerate an egg in tharpe vinegar, with coporoof and sulphur vivum beaten into fine powder, then they straine or press it through a linen cloath.

But seeing the forementioned medicines are acride, and for the most part eating and corroding, it cannot bee but that they must make the skinne harsh and rough, therefore to smooth and levigate it againe, you shall make use of the following ointment.

B. tereb. ovor. tam din lotae, ut acrimoniam nullam habeat, butyri salis expertis, an. § i. b. To smooth the skinnes.
What things are fit only the hairs.

for this purpose. These ought to be aromaticke and cephalick, and somewhat tick, that by their odoriferous and astringent power they may strengthen the animal faculty: Furthermore, they must be of subtile parts, that they may enter even into the inner rooves of the hairs.

1. Sulphuris, vitrioli, gallarum, calcis viva, lithargyri, an. 3 ii. storie ferri, 3 ii. in pol. linem educantur, cum aqua communis incorporantur, sed indi sit mossa: with this at bed time let the hairs bee rubbed, and in the morning let them bee smoothed with the same.

2. calcis late, 3 i. lithargyri urinæq. 3 β. cum decoctione gallic, cucurium, nucum, fat mossae, adendo oleocham. 3 ii. R. litharg. auræ, 3 ii. ciner. chelis, 3 i. 6. calcis viva, 3 ii. diversa omnia cum verna hominis donec acquirant consistenciae aquarum protonctione capillorum. R. calcis late, 3 iv. lithargyri urinæq. an. 3 ii. cum decoctione salvi, et coro, gra- nat. fat passa ad foramm pulvis fatis liquida: let the hair be at bed time bee dud herewith, and washed in the morning with wine and water.

Now the manner of washing lime is thus: Infuse in ten or twelve pints of fair water one pound of lime, then pour out the water by looping the vessel, putting more in the stead thereof, the third time in stead of common water powere thercon the water of the decoction of sage and galls, let the lime lye therein for so many hores, then in like manner powere it off by looping the vessel, and thus you shall have your lime well washed. There is also found a way how to die or black the hair by only powering of some liquor therecon: as, 1 argentis purissimi, 3 ii. reducantur in sesimis laminis, ponantur in ampulla vitream 3 i. aqua separations auræ & argentii, & aquæ rosar. 5 vi. The preparing of this water is thus, put into a vessel the water of separation and the silver, and let it upon hot coales do to diffolve the silver, which being done then take it from the fire, and when it is cold, add thereto the rofe water. But if you would black it more deeply, adde more silver thereto, if leffe, then a smaller quantity; to use it, you must steep the combe wherewith you combe your head in this water.

A water to black the hair.

To take the hair of a flaxen colour.

Another.

Chap. XLVII.

Of Pilostræ, or Depilatories: and also of Sweet waters.

Edicines to fetch off haire, which by the Greeks are termed Pilostræ, and Depilatoris in latin vulgarly, are made by these following examples. R. calcis viva, 3 iii. auripigmenti, 3 i. let the lime bee quench’d in faire water, and then the orpiment ad- ded with some aromaticke thing: have a care that the medicine lye not too long upon the part, otherwise it will burn, and this medicine must bee made to the consistence of a pulvis and applied warme, first fo- menting the part with warme water; then the hair will fall off by gentle rubbing, or washing it with warme water: but if there happen any excretion thereupon, you may helpe it by the use of nungentum rosatium, or some other of the like facultv.

R. calcis viva, aurip. citrin. an. 3 i. 6. piama argent. 3 i. terata & incorporan- ter cum aqua, com. & brilliant salute: you shall certainly know that it is sufficiently boile- led, if putting thereinto a gooses quill, the feathers come presently off: some make into powder equal parts of unquench’d lime and orpiment, they dry them up in a cloath, with which been steeped in water they besmear the part, and within a while
after by gently stroaking the head, the haire falls away of it sefle. The following sweet waters, because they yeeld a gratefull small : the first is lavender water thus to be made. Lah. Lavander wa- 
stor. lavend. lb iv. ag. rofar. & vini alh. an. lb ii. ag. vito, 3 iv. miscrantur omnia simul, 
-& fist distillation in balneoa Mariae : this same water may also bee had without distil- 
lation, if you put some lavender flowers in faire water, and so let them to sunne in a 
glafe, or put them in balneo, adding a little oyle of spicke and muske. Clove water is 
thus made : R. caryoph. 3 ii. ag. rofar. lb ii. macerantur potsio xxiv. horarum, & distil. Clovenate 
lentur in balneo Mariae. Sweet water commonly fo called, is made of divers odorife- 
rous things put together; as thus, R. mentha, majorana, byssopi, salvia, ro-
rismarini, lavendula, an. mii. radicisiroos, 3 ii. caryophylorum, cime-
momis, uncis moschate, ana, 3 b. limonum, num. By. 
macerentur omnia in aqua rofarum, potsio 
viginti quatuor horarum, distil. 
lentur in balneo Mariae, 
addendo Moschi, 
3 b.

The End of the Twenty sixt Booke.
The Twentieighth Booke.

CHAP. I.

What Distillation is, and how many kinds thereof there be.

Aving finisht the Treatise of the faculties of medicines, it now seemes requisite that we speake somewhat of Chymistry and such medicines as are extracted by fire. These are such as consist of a certaine subtle essence separated from their earthy impurity by Distillation, in which there is a singular, and almost divine efficacy in the cure of diseases. So that of so great an abundance of the medicines there is scarce any which at this day Chymists doe not distill, or otherwise make them more strong and effectual than they were before. Now Distillation is a certaine art or way by which the liquor or humid part of things, by the violence and force of fire or some semblable heat (as the matter shall seeme to require) is extracted and drawnne, being first resolved into vapour and then condensed againe by cold. Some call this art Sublimation or Subliming, which signifies nothing else but to separate the pure from the impure, the parts that are more subtle and delicate, from those that are more corpulent, grosse and excrementitious, as also to make those matters whose substance is more grosse, to become more pure and sincere, either for that the terrestrial parts are ill united and confounded, or otherwise confused into the whole and dispersed by the heat and so carried up, the other grosse parts remaining together in the bottome of the vessell. Or a distillation is the extraction or effusion of moisture distilling drop by drop from the nofe of the Alembicke or any such like vessels. Before this effusion or falling downe of the liquor there goes a certaine concoction performed by the vertue of heat, which separates the substances of one kind from those of another that were confusedly mixed together in one body, and so brings them into one certaine forme or body, which may be good and profitable for divers diseases. Somethings require the heat of a clearer fire, others a flame, others the heat of the Sunne, others of Athes or sand, or the filings of Iron; others horse dung, or boiling water or the oily vapour thereof. In all these kinds of fires, there are four considerable degrees of heat. The first is contained in the limits of warmth, and such is warme water, or the vapour of hot water. The second is a little hotter, but yet so as the hand may abide it without any harme, such is the heat of Athes. The third exceeds the vehemency of the second, wherefore the hand cannot long endure this without hurt, and such is the heat of sand. The fourth is so violent, that it burneth any thing that commeth nere, and such are the filings of Iron.

The first degree is most convenient to distill such things as are subtle and moist as flowers. The second such as are subtle and dry as those things which are odoriferous and aromatical, as Cinnamon, Ginger, Cloves. The third is fittest to distill such things as are of a more dense substance and fuller of juice, such as are some Roots, and gums.
Of Distillations.

Of the matter and forme of Fornaces.

He matter and forme of Fornaces uses to bee divers. For some Fornaces use to be made of bricks and clay, other some of clay onely, which are the better and more lasting, if to bee the clay bee fat and well tempered with whites of Eges and haire. Yet in sudden occasion when there is present necessity of distillation, fornoaces may be made of bricks, so laid together that the joynes may not agree, but be unequall, for so the structure will be the stronger. The best and fittest forme of a Fornace for distillation is round, for so the heat of the fire carried up equally diffuses itself every way, which happens not in a Fornace of another figure, as square or triangular, for the corners dispersse and separatte the force of the fire. Their magnitude must bee such as shall bee fit for the receiving of the vessell. For their thickeffe, so great as necessity shall feme to require. They must be made with two bottomes, distinguishing as it were into two forges, one below which may receive the ashes of the coales or the like other fuel, the other above to containe the burning coales or fire. The bottome of this upper muft eyther bee an iron grate, or elle it muft bee perforated with many holes, that so the ashes may the more easilly fall downe into the bottome, which otherwise would extinguish the fire; yet some Fornaces have three partitions, as the Fornace for reverberation. In the first and lowest the ashes are received, in the second the coales are put, & in the third the matter which is calcin’d or else distilled. The third ought to have a femicircular cover, that so the heat or flame may bee reflected upon the contained matter. The lower partition shall have one or more dores, by which the fallen downe ashes may bee taken forth, But the upper must have but one, whereby the coales or wood may be put in. But in the top or upper part of the Fornace where it shall feme most fire, there shall be two or three holes made, that by them you may blowe the fire and that the smoke may more freely passe out. But these formentioned dores must have their fliutters, just like an ovens mouth. But in defect of a fornace or fit matter to build one withall, wee may ufe a kettle, set upon a trefoote after the manner that wee shall presentely declare when wee come to speake of that distillation which is to bee made by Balneum Maria.

Of vessels fit for Distillation.

Vessels for Distillation confist of different matter and forme, for they are eyther of Lead, Tinne or Brasse, or else earthen vessells and these are sometimes leaded, sometimes not: or else they are of Gold, silver,
silver or glass. Now for leaden vessels they are worse than the rest, and utterly to be refused, especially when the liquors which are drawn by them are to be ill taken into the body by the mouth, by reason of the maligne qualities which are said to be in Lead, by which occasion, Galen condemns those waters which runne, and are contained in Lead pipes, which by reason of their falsitie and acridity which favores of quicksilver, they cause diftemperies. Therefore you may perceive such vessels as are distill'd through a leaden head to be endued with a more acrid and violent piercing vapour, by reason the portion of that falsitie dissolved in them, & as it were sipped from the top of the Alembicke or head, defiles the distill'd liquors, and whitens and turns them into a milky substance: but copper or brass heads are more hurtfull than Lead, for they make the waters that come through them to favour or participate of brass. Those that are of gold and silver are least hurtfull; but the greatnes of the cost hinders us from making heads of such metals, therefore we must have a care that our vessels for distillation be eithet of petters metall leaded, or eithe of brass, or of that jugge metall which is commonly called terra beveracensi, and these rather than Lead, or any other metall. Verily glasse are thought the best and next to them, carthen vessels leaded, then of jugge metall, and lastly those of tinne. There is great variety of vessels for distillation in forme and figure; for some are of an oval or cylindricall figure, that is, of a round and longnece; others are twisted and crooked, others of other shapes, as you may see in the beakes of the Chimackicks. Of this almost infinite variety of figures I will in this place give you the delineation and use of such as shall seeme to bee most necessary.

Lib. 28.
Of Distillations.

Chap. III.

what things are to be considered in distillation.

Ir't make choyce of a fit place in your house for the fornace, so that it may neither hinder any thing, nor be in danger of the falling of any thing that shall lye over it. When you shall distill any thing of a maligne or venenatque quality, ye shall stand by it as little as you may, lest the vapour should doe you any harme: when you provide glass vessels for distillation, make choice of such, as are exquisitely baked, without flaws or cracks, and such as are as white as smooth. Let not the fire at first be very violent, not only for fear of breaking the vessels, but also for that the first fire in distillation must be gentle, and so increas'd by little and little. The things to be distill'd, ought not to be put in too great quantity into the body of the still, lest they should rise up or fly over. Hot things, that they may more effectuall must be twice or thrice distill'd, by pouring upon them their owne distill'd water or other freth materials, or else by distilling them severally and by themselves: of this kind are gummes, waxe, fats, or oyles.

But in each other repeated distillations you must something leffen the force of the fire, for the matter attenuated by the former distillation cannot afterward indure so great heat, but aromaticke things, as Cloves, Cinnamon, &c. as also the chymicall oyles of Sage, Rosemary, Tyme, &c. ought not to bee distill'd or rectify'd over again, for that we must prefently after the first distillation have a diligent care to separate them from the phlegme, that is, the more watry fluidance of the whole liquour, to which purpose we must have regard to that which is distill'd, for there are some things which first fend over their phlegme as Vinegar, others, where it comes last as aquavitae.

If you would give to things to bee distill'd another taste or smell than that which they have naturally, you may mixe with them some odoriferous thing.
thing, as Cinnamon, Camphire, or Muske, or the like, as you please, and so distill them together. The distill'd liquors which are drawn by the heat of ashes or sand, favour of and retain a certaine empyreuma, or match of the fire, for the helping of which, you shall put them into glaftes very close stops, and so expose them to the fume, and now and then open the glaftes that this fiery impression may exhale, and the phlogiston be consumed, if that there shall be any. But though in all distillation, there are many things to be observed, yet are there two things, chiefly worthy of note. The firft is, the matter that is to be distilled and wrought upon, that is, of what kind it is, and what the nature thereof may doe and suffer. The other is the Furnace, which ought to be provided of a convenient matter and figure for that which is to be distilled: for you cannot draw any thing of any matter, neither of every mixture being distilled can you rightly expect oyle or water. For mixt bodies do not consist of an equal portion of the four Elements, but some are more aery, others more fiery, some participate more of the water, others more of the earth, and that presently from their first originall. Therefore as watry things yeeld more water, so aery and fiery things yeeld more oyle when they are distilled; neither are all instruments fit for the extracting of every liquor. Moreover you must note, that the watery liquor sometimes comes forth in the firft place, and presently after by the help of a stronger fire followes the oilely, which we finde happens as often as the plant or parts of the plants which are distilled, are of a cold temperament; for in hot things it happens otherwise, for the firft liquor which comes forth is oilely, and the following watriff.

Chap. V.

Of what fashion the vefellls for the distilling of waters ought to be.

The distilling of any kind of waters, two kind of vefellls are necessarie, which are comprehended under this one general name of an Alembeck. They call one of them the body, or containing vefell, the other the head, that is, the cap or top wherein the ascending vapours are condensed or turned into water. It is called the head, because it stands over the body, like an head; from the head there comes out a pipe or nofe whereby the distill'd liquor flows drop by drop into the receiver, as you may see by the following figure.

The parts of an Alembeck.

A. A braze kettle full of water.

B. The cover of the kettle perforated in two places, to give passage forth to the Vessells.

C. A pipe or chimney added to the kettle wherein the fire is contained to heat the water.

D. The Alembeck consisting of his body and head.

E. The receiver whereinto the distill'd liquor runs.
The effigies of another balsamum Maria, not so easie to be removed as the former.

A. Shewes the vessell or Copper that contains the water.

B. The Alembecke set in water.

But least the bottome of the Alembecke being halfe full, should doe one up and downe in the water, and so stick against the sides of the Kettle, I have thought good to shew you the way and meanes to prevent that danger.

A. Shewes the Vessell or glasse Alembecke.
B. A plate of Lead whereon it stands.
C. Strings that bind the Alembecke to the plate.
D. Rings through which the strings are put, to fasten the Alembecke.

You may also distill the liquors of things, by the vapour or fumes of boiling water, if so be that you bee provided of Vessells and formes made after this following manner.

A. Shewes the head of the Alembecke.
B. The body thereof, placed in a braffe vessell made for that purpose.
C. A brass vessell perforated in many places to receive the vapour of the water. This vessell shall contain the Alembecke compassed about with sawdust, not only that it may the better and longer retaine the heat of the vapour, but also least it should be broken by the hard touch of the brassen vessell.
D. Shewes the brass vessell containing the water as it is plac'd in the Fornace.
E. The Fornace containing the vessell.
F. A Funnell by which you may now and then poure in water, in stead of that which is one mith and dissipat'd by the heat of the fire.
G. The Receiver.

Now for the facultys of distilled waters it is certaine, that those which are drawne in bals Maria or a double vessell, are farre better and efficacious, because they
Win that things which are distilled in the burning heat of fire, do not only retain the smell of the things which are distilled, but also the taste, acridity, harshness, sweetness, bitterness, and other qualities, so that they will neither favour of smoke nor burning; for the milde and gentle heat of a bath contains by its humidity, the more volatile parts of the plants that are distilled, that they be not dispersed and exhaled, contrary to which it usually happens in things which are distilled by the burning heat of wood or coals. For these have a certain nitrous and acrid taste, favouring of the smoke of fire. Besides, they acquire a maligne quality from the vessels out of which they are distilled, especially if they bee of Lead, where they contract qualities hurtful to the principal, vital, and natural parts.

Therefore the plants which are thus distilled, if they be bitter by nature, presently become insipid, as you may perceive by wormwood water thus distilled. Those things which are distilled in Eulale Marie are contained in a glasse vessel, from which they can borrow no maligne quality. Therefore the waters so drawn are more effectual and pleasing in taste, smell, and light. You may draw waters not only from one kind of plant, but also from many compounded and mixed together: Of these some are alimentary, others medicinal, yea and purging, others acquired for small, others for washing or soothing of women's faces, as we shall shew hereafter.

CHAP. V. L

How the materials must be prepared before Distillation.

Things before they be put into the Alembecce must undergoe a preparation, that is, they must be cut small, beaten and macerated, that is, steeped in some liquor, that so they may be the more easily distilled and yield the more water, and retain their native smell and faculties; yet such preparation is not convenient for all things; for there be some things, which need no maceration, but must rather be dried before they be distilled, as Sage, Time, Rosemary, and the like, by reason of their too much humidity, it will be sufficient to sprinkle other things with some liquor only. In this preparation there are two things observable, to wit, the time of the infusion and condition of the liquor wherein these things ought to be infused. The time of the infusion is different according to the variety of the matter to be macerated: for things that are hard, solid, dry or whole, must be longer macerated, than such as are tender, freshly gathered or beaten: whence it is that roots and seeds require a longer time of infusion, flowers and leaves a shorter, and the like of other things. The liquors wherein in infusion must be made, ought to be agreeable to the things infused. For hot ingredients require hot liquors, and cold such as are cold wherein they may be infused.

Such things as have not much juice, as Betonic, wormwood and the like, or which are very odoriferous, as all aromaticke things, would be infused in wine, so to preserve their smell, which otherwise by the force of the fire, by reason of the tenuity of the substance, easily vanishes. But if wee desire that the distilled liquor should more exactly retain and have the faculty of the things whereof it is distilled, then must you infuse it in the juice thereof, or some such appropriate liquor, that it may swimme in it whilst it is distilled, or at least let it be sprinkled therewith.
Before I describe the manner how to distill waters, I think it not amiss briefly to reckon up how many sorts of distilled waters there bee, and what

The varieties

as the waters of Roses, Plantaine, Sorrell, Sage, and the like others are alimentary,

The varieties

as smoothing the skinne, and others for small, of which sort are those that are distill-

The varieties

as distill Rose water, it will be good to macerate the Roses before you distill Rosewater,

The varieties

Restauratives

The varieties

The delineation of a Balneum Maria, which may also serve for to distill with Ashes.
Another way of making restorative Liqueurs.

There may be made other restoratives in shorter time with less labour and cost. To this purpose the flesh must be beaten and cut thin, and to thrust through with a double thred, so that the pieces thereof may touch each other, then put them into a Glaffe, and let the thred hang out, to steep up the glaffe close with a limme cloth, Cotton, or Towes, and lure it up with palle made of meal and the whites of eggs, then fer it up to the neck in a kettell of water, but so that it touch not the bottome, but let it be kept upright by the formerly described means, then make a gentle fire thereunder, until the contained flesh by long boiling shall be dissolved into juice, and that will commonly be in same fourte hours space. This being done, let the fire be taken from under the kettell, but take not forth the glaffe before the water be cold, least it being hot should be broken by the sudden appulse of the cold aire. Wherefore when as it is cold, let it be opened, and the thred with the pieces of flesh be drawn thereof, so that only the juice may be left remaining; then straine it through a bagge, and aromatize it with Sugar and Cinnamon, adding a little juice of Citron, Verjuce or Vinegar, as it shall best like the patients palate.

After this manner you may quickly, easily and without great cost have and prepare all sorts of restoratives alwell medicated as simple. But the force and faculty of purging medicines is extract ed after a clean contrary manner than the oxys and watersarc are, but the strength of purging things, as Turbirth, Agarick, and the like, subside in the bottome. For the purgative faculty of these purgers infparably adheres to the bodies and sub- stances.

Now for sweet waters and such as server to smooth the skinne of the face, they may be distilled in Balneo Maria, like as Rofe water.

Chap. VIII.

How to distill Aqua vita or the spirit of wine.

Ake of good White or Clarret wine or Sacke which is not sour, nor mustie, nor otherwise corrupt, or of the Lees that quantity which may serve to fill the vesseell wherein you make the distillation to a third part; then put on your head furnished with the nose or pipe, and so make your Spirit of wine in Balneo Maru. The oftener it is distilled, or (as they terme it) rectified, the more noble and effectual it becomes. Therefore some distill it seventimes over.

At the first distillation it may suffice to draw a fourth or third part of the whole; so that the oftener you distill it over, the leffe liquor you have, but it will be a great deal the more efficacious. I doe well like that the first distillation bee made in Athes; the second in Balacum Maria. To conclude, that aqua vita is to be approved of, either is it any ofter to be distilled, which put into a pioone or faucer, and there let fire, burns wholly away and leaves no liquor, or moisture in the bottome of the vesseell; if you drop a drop of oyle into this same water, it incorruptly falls to the bottome; or if you drop a drop thereof into the palme of your hand, it will quickly vanish away, which are two other notes of probation of this liquor.

The faculties and effects of aqua vita are innumerable, it is good against the epilepsy and all cold diseases, it affwages the paines of the teeth, it is good for punctures and wounds of the Nerves, faintings, fowings, gangrenes and mortification, both of its flesh, as also put to other medicines for a vehicle.

There is this difference betweene the distilling of wine and Vinegar, wine being of an ayrery and vaporous substance, that which is the best and most effectual in it, to wit.
wit, the acrid and fiery liquor comes from it presently at the first distillation. Therefore the residuum that remains at the bottom of the vessel is of a cold, dry, and astringent nature; on the contrary, the water that comes from Vinegar being distilled is insipid and phlegmatic. For Vinegar is made by the corruption of wine and the segregation of the fiery and acrid parts; wherefore the wine becoming sour, there remains nothing almost of the former substance but phlegm; wherefore seeing phlegm is chiefly predominant in Vinegar, it first rises in distillation. Wherefore he that hopes to distill the spirit of Vinegar, he must cast away the phlegmatic substance that first rises, and when by his taste he shall perceive the spirit of Vinegar, he shall keep the fire there under, until the flowing liquor shall become as thick as honey, then must the fire be taken away, otherwise the burning of it will cause a great stench.

The vessels fit to distill aqua vitae and Vinegar are diverse, as an Alembicke or Retort set in sand or ashes; a Copper or brass bottom of a still, with a head thereto, having a pipe coming forth thereof which runs into a worm, or pipe fastened in a barrel or vessel filled with cold water, and having the lower end coming forth thereof, whose figure will give you when we come to speak of the drawing of oils out of vegetables.

CHAP. IX.

Of the manner of rectifying, that is, how to increase the strength of waters, that have been once distilled.

To rectifie the waters that have been distilled in _Balneo Maria_, you must set them in the Sunne in glasses well stopp'd and half filled, being set in land to the third part of their height, that the water waxing hot by the heat of the Sun may separate it itself from the phlegm mixed therewith, which will be performed in 12 or 15 days. There is another better way to do this, which is to distill them again in _Balneo_ with a gentle fire, or if you will put them into a retort furnished with his receiver, and set them upon crystal or iron bowls, or in an iron mortar directly opposite to the beams of the Sun, as you may learn by these ensuing figures.

A Retort with his receiver standing upon Crystal bowls, just opposite to the Sunne beams.

Another Retort with his receiver standing in a Marble or Iron mortar, directly opposite to the Sun. 

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A. Shows the Retort.
B. The receiver.
C. The Crystal bowls.

A. Shows the Retort.
B. The Marble or Iron mortar.
C. The receiver.


**CHAP. X.**

*Of distillation by filtration.*

You shall set three basins or vessels of convenient matter in that fire and order that each may be higher than other, that which stands in the highest place, shall contain the liquor to be distilled, and that which stands lowest shall receive the distilled liquor. Out of the first and second vessel shall hang shreds or pieces of cloth or cotton, with their broader ends in the liquor or upper vessel, and the other sharper ends hanging down, whereby the more subtile and decanted liquor may fall down by drops into the vessel that stands under it, but the grosser and more feculent part may subside in the first and second vessel. You by this means may at the same time distill the same liquor divers times, if you place many vessels one under another after the forementioned manner, and so put shreds into each of them, so that the lowest vessel may receive the purified liquor. In stead of this distillation Apothecaries oft times use bagges.

This manner of distillation was invented to make more clear and pure waters and all juices and compositions, which are of such a liquid consistence. You may take an example of this from *Lac Virginis,* or Virgins milke, of which this is the description.

```latex
\text{Virgins milke}.
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By distillation, which is by distilling the parts of plants and other things in oyles. The third is by distillation, such is that which is drawn by the heat of the fire, whether by ascent or by descent, or by concourse. The first way is knowne by alig, now it is thus, take almonds in their huskes, beat them, work them into a masse, then put them into a bagge made of haire, or else of strong cloth first steeped in water, then put them into preffe, so to extract their oyle. You may doe the same in pine apple kernells, Hazell nuts, Coco nuts, nutmegs, peach kernells, the seeds of gourds & cucumbers, pistickie nuts, and all such oily things. Oyle of bayes may be made of ripe bay-berrys newly gathered, let them be beaten in a morter and so boiled in a double vessel, and then forthwith put into preffe, so to extract oyles as you
Of Distillations.

You do from almonds, unless you had rather get it by boiling as we have formerly noted. Oyle of eggs is made of the yolkes of eggs boiled very hard; when they are so, rub them to peeces with your fingers, then fry them in a panne over a gentle fire, continually stirring them with a spoon until they become red, and the oyle be resolved and flow from them: then put them into a hair cloth, and so preserve the oil. If any acuity remain, let it be evaporated by boiling. Some in compounding of oyles add gums to them, of which though we have formerly spoken in our Antidotary, yet have I thought good to give you this one example.

Oil of St. John's wort.

Oyles of St.

Oyle of clove.

Of Mallick.

Of extracting OiIs of vegetables by Distillation.

Of extrating OiIs of vegetables by Distillation.

Of extracting OiIs of vegetables by Distillation.

Oyles are to be drawn by expression.

Oyles are to be drawn by expression.

Oyles are to be drawn by expression.

Oyles are to be drawn by expression.

Oyles are to be drawn by expression.

The first manner of drawing oyles by distillation.

The first manner of drawing oyles by distillation.

The first manner of drawing oyles by distillation.

Chap. XII.

OF DISTILLATIONS.

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and taue, then put out the fire, and you may separate the oyle from the water by a little vessel made like a bimble and tied to the end of a fliue; [or, which is better, with a glasse funnell, or instrument made of glasse for the same purpose.] Here you must also note that there be some oyles that fwinne upon the top of the water, as oyle of anifeede, and Cloves to the contrary, which fall to the botome, as oyle of Cinnamon, Mace, and Cloves.

Moreover you must note, that the waftre moisture, or water that is distilled with oyle of Anifeede and Cinnamon, is whitish, and in lucceffive of time, will in some small proportion turne into oyle. A fothte waters must be kept severall, for they are farre more excellent than those that are distilled by Balsamum Marta, especially those that first come forth together with the oyle. Oyles are of the same faculties with the bodies from whence they are extracted, but much more effectually for the force which formerly was distilled in many pounds of this, or that medicine, is after distillation contracted in a few drams. For example, the facultie that was distillected over one pound of Cloves, will be contracted into two ounces of oyle at the most; and that which was in a pound of Cinnamon will be drawn into 3 or 5 ij. at the most of oyle. But to draw the greater quantity with the lesser charge, and without fear of breaking the vessels, where to glasse are subiect, I like that you distil them in copper vesseles, for you need not fear that the oyle which is distilled by them will contract an ill quality from the copper, for the waftre moisture that flowers forth together with this, will hinder it, especially if the copper shall be tinned or silvered over. I have thought good to describe and let before your eyes, the whole manner of this operation.

A Formace with cer vesseles to extrall the Chymical oyles, or spirits of Sage, Rosemary, Time, Lavender, aniseeds, Fennell seeds, Cloves, Nutmegs, Cinnamon, Pepper, Ginger, and the like, as also to affill the spirit of wine, of Vinegar and aqua viva. In stead of the barrell and worme, you may use a head with a bucket or rowler about it.

A. Shewes the botome, which ought to be of Copper and tinned on the inside.
B. The head.
C. The Barrell filled with cold water to refri¬
gerate and condensate the water and oyle that run through the pipe or worme that is put through it.
D. A pipe of braffe or lattin, or rather a worme of Time running through the Barrell.
E. The Alembicke set in the fornace with the fire under it.

Now because we have made mention of Cinnamon, Pepper, and other spices, which grew not here with us, I have thought good to describe these out of Tho:vetis Col¬mography, he having seene them growing, Pepper grows on thurb in India, these thurb build forth little branches whereon hang clusters of berries, like to lvy berries, or bunches of small blacke grapes, or currants. The leaves are like those of the Citron tree, but sharph and prickling.

The Indians gather those berries with great diligence, and grow them up in large cellars, as soon as they come to perfect maturity. Wherefore it oft times happens, that there are more than 100,000,000 upon the coall of the leffer Isala and Isala of
of that country, to carry thence Pepper and other spices. Pepper is used in Anti-
dotes against poisons, it provokes urine, digests, attracts, resolves, and cures the
trees of Serpents. It is properly applied and taken inwardly against a cold stomach,
in sauces it helps concoction and procures appetite; you must make choise of such
as is blacke, heavey, and not flaccide. The trees which bear white, and those that
bear blacke pepper, are so like each other, that the natives themselves know not
which, is which, unless when they have their fruit hanging upon them, as the like
happens upon our Vines which bear white and blacke grapes.

The tree that yieldeth Cinnamon growes in the mountains of India, and hath leaves
very like to bay leaves; branches and shoots at certain times of the yeare are cut
from this tree, by the appointment of the King of that province, the barke of which
is that we term Cinnamon. This is sold to no stranger unless at the Kings pleasure
and he setting the price thereof, it is not lawful for others to cut any thereof.

Galen writes that Cinnamon is of very subtle parts, hot in the third degree, and part-
taking of some affination; therefore it cures and dissolves the excrements of the body,
strengthens the parts, provokes the courser when as they stoppe by reason of the adm-
mixture of gross humors; it sweetens the breath, and yieldeth a fine taffe and smell
to medicines, hippocras, and sauces. Of Cinnamon there is made an excellent water
against all cold diseases, and also against swoonings, the plague and poysens. The
composition thereof is this. Take of the choyleft and beft Cinnamon one pound,
beate it groffely, and put thereto of Rose water 4 pints of white wine halfe a pint, be-
sins thus mixed, put them into a glaffe and so let them stand in infusion 4 houres, of-
ten stirring of them. Then distill them in clofely leting the receiver
and vellcls left the spirit shold fly away.

Chap. XIII.

Another manner how to draw the essence and spirits of herbes, flowers, seeds,
and spices as also of Rubarbe, Agaricke, Turkish, Hermodactilies, and other Purgers.

You may extract the essences and spirits of the things mentioned in the ti-
tle of this chapter, as thus. Take Sugar, Rubarbe, Cinnamon, or any other
matter all you please; cut it small, or else beate it, then put it into a glaffe
with a long necke, and pour thereupon as much aqua vita as shall be suf-
cient to cover the materials or ingredients, & to overtop them some fingers breadth,
then stop up the glaffe very clofe that no ayre enter therein. Thus suffer it to infuse
for 8 days in balneo with a very gentle heat, for thus the aqua vita will extract the fac-
ules of the ingredients, which you shall know that it hath done, when as you
shall see it perfectly tinturred with the colour of the ingredients. The eight dayes
ended, you shall put this same aqua vitce into another vellelfilled with the like quan-
tity of the same materials prepared after the same manner, that it may also take forth
the tinture thereof, and doe thus three or foure tiroes,untill the aqua vita be deeply
tinturred with the colour of the infused Ingredients. But if the materials from whence you desire to extract this spirit or essence, be of great price, as Lignum Alas, Rubarbe, &c. You must not thinke it sufficient to
infuse it once onely, but you must goe over it twice, or thrice, untill all the effecie
be extracted out thereof; you may know that it is all wholly infipide.

These things thus done, as is fitting, put all the liquor tinturred and furnished
with the colour and strength of the ingredients, into an Alcmebecke, sitted and closely
luted to its head, and so put into Balneo Maria, that so you may extract or draw off
the aqua vitce, to keepe for the like purpose, and so you shall have the spirits, and es-
ience remaining in the barome.

Now if you desire to bring this extract to the height of honey, let it in an earthen
pot well leaded, upon hot ashes, so that the thinner part thereof may be evaporated,
for thus ar length, you shall have a most noble and effectuall essence of that thing

Aaaaa which
which you have distilled, whereof one scruple will be more powerfull in purging, than two or three drammes of the thing itself.

CHAP. XIII.

How to extract oil out of Gums, condensed juices, and resines, or also out of some woods.

Oyls that are drawn out of Gummies, oyley woods and mettalls, are extracted by that vessel which we vulgarly terme a Retort. It must bee made of glasse, or jugges mettall well Leaded, and of such bignesse as shall be convenient for the operation you intend, though commonly it should be made to hold some gallon and an halfe of water; the necke thereof must bee a foote and an halfe, or at least a foote long. The receiver is commonly a viall whereinto the necke of the Retort is fitted and inbred. Then the Retort shal bee set in an earthen pan filled with ashes, or sand, and so set into a furnace, as you may see by the following figure.

Of gumsmes some are liquid, some solid; and of the solid, some are more solid than others; some that are solid are more troublesome to distill than the liquide, for they are not so easily dissolved or melted, neither doe they yield so well to the fire, so that oft times they are burnt before they bee dissolved; whence it is that some for every pound of solid gumme, add two or three pounds of most clear and liqueide oyle of Turpentine. Besides, liquide things are also hard to be distilled, because when as they come to be throughly hot at the fire, they swell up so much, that gumsmes exceed, or runne out of the Retort, and so fall into the receiver, as they were put into the Retort, especialy if so be that the fire be too hot at the firft. Many to shunne this inconvenience, adde to the things put into the Retort, some sand, as it were, to balast it within.

The figure of a furnace, with his earthen pan and receiver.

Oyle of Rosin and Turpentine is thus made, take two or three pounds of Turpentine, and put it into a Retort of such largeness, that three parts thereof might remaine empty, and for every pound of Turpentine addde three or foure ounces of sand, then place the Retort in an earthen pan, filled with sifted ashes, and set it upon the furnace as is fit, and to the necke thereof fit and closely lute a receiver. Lastly, kindle thereunder a soft fire at the firft, leaft the contained materials should runne over, encrease this fire by little, and little, and take heed that the things become not too hot on a sudden. At the firft a clearre, and acide liquor will drop out, wherein in a certaine sediment ues to conceaute, then will flow forth a most clearre oyle, some what resembing the watry and phlegmaticke liquor; then must the fire be somewhat encreased, that the third oyle, clearre, thicke and very golden coloured liquor may rise and distill, but then also a clearer and more violent fire must be rayfed, that so you may
may extract an oyle that will be red like a carbuncle, and of a consistence indifferently thick. Thus therefore you may extract, four kinds of liquors out of Turpentine, and receive them being different in several receivers: Yet I judge it better to receive them all in one, that by distilling them againe afterwards you may separate your desired oyle, now there will ten or twelve ounces of oyle, flow from an ounce of Turpentine. This kind of oyle is effectuall against the Palsie, Convulsion, punctures of the nerves, and wounds of all the nervous parts.

But you shall thus extract oyle out of waxe, take one pound of waxe, melt it, and put it into a glasse Retort set in sand, or ashe, as we mentioned a little before in drawing of oyle of Turpentine, then distil it, by increasing the fire by degrees. There distills nothing forth of waxe, besides an oily substance and a little Phlegma, yet portion of this oily substance, presently concreats into a certaine butter-like matter, which therefore would be distilled over againe; you may draw 3 vj., or viij., of oyle, from one pound of waxe.

This oyle is effectuall against Convulsions, and also very good against cold afpects.

Chap. XV.

Of extracting of oyles out of the harder sorts of Gummes, as myrrhe, mastic, frankincense and the like.

One there be who extrait these kinds of oyles with the Retort set in ashes or sand, as we mentioned in the former Chapter of oyles of more liquid gums, adding for every pound of gumme two pints of Aqua vita, and two or three ounces of oyle of Turpentine, then let them infuse for eight or ten dayes in Balsmo Maria, or else in horstedung, then they let it to distill in a Retort. Now this is the true manner of making of oyles of Myrrhe; Take Myrrhe made into fine powder, and therewith fill hard Eggs in stead of their yolkes being taken out, then place the Eggs upon a gridiron, or such like grate in some moist place as a cellar, and let under them a Leadene earthen panne; the Myrrhe will dissolve into an oily water, which being presently put into a glasse and well stoped, with an equal quantity of rectified aqua vitæ, and so let for three or four moneths in hot horstedung, which past the yeare shall be taken forth and so stoped that the concerned liquor may be pourte into an Alembicke, for there will certaine grossie letting by this meanes remaine in the botome, then let your Alembicke in Balsmo and to draw off the aqua vitæ & phlegmatique liquor, and there will remaine in the botome a pure & cleare oyle, wherebrowyou may give a curious colour by mixing therewith some Alkanet, and a sweete by droping thereinto a little oyle of Sage, Cinnamen or cloves.

Now let us shew the composition and manner of making of balamas by giving you one or two examples; the first of which is taken out of Petasis his Chirurgery, and is this.

R. terebenth. opt. lb. jol. laurin 3 jijii., galbanii 3 jijii., gum. elem. 3 jijii., thuri, Myrrha, gum. hederæ, centaur. majus, liqui aloea, an. 3 jijii., galanga, Caryophyll, confid. majoris, Cimamonii, nuci muschat. zedwmia, sinsib. dictamni alto, en. 3 jijii. olei vermium terrestrium, 3 jijii. aquæ vitæ lb. viii.

The manner of making is this, let all these things be beaten and made small, and so infused for three dayes space in aqua vitæ, then distilled in a Retort just as we said, you must distil oyle of Turpentine and waxe. There will flow hence three forts of liquors, the first wathifh and cleare, the other thinne, and of pure golden colour; the third of the colour of a Carbuncle, which is the true Balsame. The first liquor is effectuall against the weakenesse of the stomacke comming of a cold cause, for that it cuts phlegme and diffuseth flatulence; the second helps fresh and hot bleeding wounds, as also the palfie. The third is chiefly effectuall against these same effects.

The composition of the following Balasum is out of Fallsim and is this.

R. terebenth. claræ, lb. ij. olei de femeine lini lb. j. refina pulv. 3 jijii., thuri, myrthe, aloes, masticæ, sarcocolla, an. 3 jijii., masc. ligni aloes, an. 3 jijii., olei vermium terrestr. 3 jijii. aquæ vitæ lb. yviiii.

This oyle is effectuall against Contusions, and also very good against cold afpects.
Let them all be put in a glass Retort, set in ashes and so distilled. First there will come forth a clear water, then presently after, a reddish oyle, most profitable for wounds.

Now you must know that by this means, we may easily distill all Axungia's fats, parts of creatures, woods, all kinds of barks and seeds, if so bee that they be first macerated as they ought to bee, yet so that there will come forth more watry than oily humidity. Now for that we have formerly frequently mentioned Thuja or frankincense, I have here thought good out of Thevetia Botanography to give you the description of the tree from which it flows. The frankincense tree (faith hee) grows naturally in Arabia, resembles a pine, yielding a moisture that is presently hardened, and it concretes into whitish clear grains, fatty within, which cast into the fire, take flame. Now frankincense is adulterated with pine-robin and Gumme, which is the cause that you shall seldom finde that with us, as it is here described; you may finde out the decr in this, for that neither Rosin nor any other gummee takes flame, for Rosin goes away in smoke, but frankincense presently burns. The smell also bewrays the counterfeite, for it yeelds no gratefull smell as frankincense doth. The Arabian wound the tree that so the liquor may the more readily flow forth, whereof they make great gaines. It fills up hollow Wickers and cicatrizes them; wherefore it enters as a chiefe ingredient into artificial balames; frankincence alone made into powder and applied, stanches the blood that flowes out of wounds.

Mathioli faith, that it being mixed with Fullers earth, and oyle of Rosin, is a singular remedy against the inflammation of the breasts of women, lately delivered of childe.

C H A P. X V I.

The making of oyle of Vitrioll.

Take ten pounds of Vitrioll, which being made into powder, put it into an earthen pot, and set it upon hot coales, untill it be calcined, which is when as it becomes reddish after some five, or sixe hours, when it shall bee thoroughly cold, break the pot, and let the vitrioll be againe made into powder, that so it may be calcined againe, and you shall doe thus so often and long untill it shall be perfectly calcined, which is when as it shall bee exactly red; then let it be made into powder, and put into an earthen Retort, like that wherein aqua fortis is usually drawne, adding for every pound of your calcined vitrioll of tile threds, or powdered brickes a quarter; then put the Retort furnishe of its receiver into a formace of Reverberation, always keeping a strong fire, and that for the space of 48 hours, more or lesse according to the manner and plenty of the distilling liquor. You shall know the distillation is finishe when as the receiver shall begin to recover his native perspicity, being not now filled with vaporous spirits, wherewith as long as the humor distills it is replenished and looks white.

Now for the receiver there are three things to be observed. The first is, that it bee great and very capacious, that it may not be distended and broken by the abundant flowing of vaporous spirits, as it doth oft times happen; another thing is, that you set it in a vessell filled with cold water, leaft it should be broken by being over hot; you may easily perceive all this by the ensuing figure.

Check
Of Distillations.

A Furnace or Reverberation furnished with his Retort and Receiver.

A. Shows the Furnace.
B. The Retort.
C. The Receiver.
D. The vessel filled with cold water.

Chap. XVII.

A Table or Catalogue of medicines and instruments serving for the cure of Diseases.

Medicines and medicinal substances fit for the cure of diseases are taken from living creatures, plants and minerals. From living creatures are taken,

Hornes.
Hoores.
Haires.

Feathers.
Shells.
Scales.

Sweates.
Skinnes.

Farts.
Fish.
Blood.

Entailles.

Vrine.

Smells whether they be stinking or sweet, as also person: whom creatures themselves,

at,

Fosses.
whelpes.
Hedgehogs.

Frog.

Wormes.
Crabe.
Crab-fishes.

Scorpions.
Horselachets.

Swallowes.

Dungs.

From Plants, that is, Trees, forbes, and herbs are taken,

Roots.

Mosses.

Stubs.

Sions.

Aaaaa 3
Metals, or minerals, are taken either from the water, or earth, and are either kinds of earth, stones, or mettalls, &c.

The kinds of earth are,
- Bile Armenieke
- Terra Sigillata
- Fuller's earth
- Chalk
- Ohr
- Plasfer
- Lime

Now the kinds of stone are,
- Flint
- Lapis Jadaicus
- Lapis Lyncis
- The Pumice
- Lap. Hamatites
- Amianitus
- Galactites
- Sponge stones
- Diamonds

Those that are commonly called minerals are,
- Marchasite
- Antimony
- Muscovy Glasse
- Taty
- Askinke
- Orpiment
- Lazur, or blew
- Rofe agar
- Bromptone
- Quick silver
- White Coppe
- Chalceitis
- Pyry
- Roman Vitrioli
- Colcothar, vitrioll, or Greene Coppe

Now the Metals themselves are,
- Gold
- Silver
- Iron
- Lead
- Tinne

Now from the waters, as the Sea, Rivers, Lakes and Fountains, and the mud of these waters, are taken divers medicines, as white and red Corall, Pearles and infinite...
finite other things which nature the handmaid of the great Architect of this world, hath produced for the cure of diseases, so that into what part soever you turn your eyes, whether to the surface of the earth, or the bowels thereof, a great multitude of remedies present themselves to your view. The choice of all which is taken from their substance, or quantity, quality, action, place, season, smell, taste, size, figure, and weight, other circumstances, as Sydenham hath abundantly shewed in his book written upon this subject. Of these simples are made diverse compositions, as,

**Collyria.**

**Caputpurgia.**

**Opiates.**

**Caput pneumatics.**

**Conserves.**

**Eclogemata.**

**Treftes.**

**Ventres.**

**Confections.**

**Vomits.**

**Stomachatoryes.**

**Sudorifices.**

**Glyceres.**

**Pessaries.**

**Suppositoryes.**

**Fumigationes.**

**Trochices.**

**Frontalis.**

**Coppes.**

**Stomachers.**

**Bagges.**

**Bathes.**

**Halse-halbes.**

**Virgin-milke.**

**Faucis.**

Now these that are thought to be nourishing medicines are:

**Restoratives.**

**Conserves.**

**Expressions.**

**Gelyes.**

**Pisans.**

**Earl. creames.**

**Pomades.**

**Almond milkes.**

**Marceopaines.**

**Waters.**

**Hydro sacchar.**

**Hydromel and such other drinks.**

**Macilages.**

**Oxymel.**

**Oxycrate.**
Waters and distilled oils, and divers other Chymicall extractions.

As the waters and oyles of hot, dry and aromaticke things, drawne in a copper Alembkke, with a cooler, with ten times as much water in weight as of herbes; now the herbes must be dry, that the distillation may the better succeed.

Waters are extracted out of flowers, put in a Retort, by the heat of the Sunne, or of dung, or of an heap of pressed out Grapes, or by boiling, if there bee a receiver put and cloeely luted thereto. All kindes of fat of things calcined, dissolved in water, and twice or thrice filtered, that so they may become more pure and fit to yeild oyle.

Other distillations are made either in Cellars, by the coldeffe or moisflure of the place, the things being layd either upon a marble, or else hang'd up in a bagge, and thus is made oyle of Tartar, and of salts, and other things of an aluminous nature.

Bones must be distilled by descent, or by the joyning together of vessels. All woods, roots, barks, shells of fishes, and seeds, of corne, broome, beans, and other things whose juice cannot be got by expression, must bee dissolved by descent, or by the joyning together of vessels in a Reverberatory furnace. Metals and stones, and having acquired the nature of salt, ought to bee dissolved and filtered, and then evaporated till they bee dry; then let them bee dissolved in distilled vinegar, and then evaporated and dried again, for so they will easily distill in a Cellar upon a Marble, or in a bagge. Or else by putting them into a glassie retort, and letting it in fand, and so giving fire thereunto by degrees, until all the watery humidity be distill'd, then change the receiver, and lute another cloeely to the Retort, then encrease the fire above and below, and thus there will flow forth an oyle very red coloured. Thus are all metallic things distill'd, as Alomes, salts, &c.

Gummes, xanthe, and generally all roines are distill'd by retort set in an earthen vesse filled with Ashes upon a fornace; now the fire must be encreased by little and little according to the different condition of the distilled matters.

The vessels and Instruments serving for distillations are commonly these.

Bottomes of Alembkees.
The heads of them, from whence the liquors droppe.
Refrigeratories.
Vessels for sublimation.
For Reverberation.
For distilling by descent.
Crucibles and other such.
Vessels for calcination.
Haire hairers.
Bagges.
Earthen platters.
Vessels for circulation, as Pellicanes.
Earthen Basins for filtering.
Fornaces.
The secret fornaces of Philosophers:
The Philosophers egg:
Cucurbites
Retorts
Bolt heads
Vrinalls
Receivers
Vessels so fitted together that the lowermost receives the mouth of the uppermost, whence they may bee termed conjoynd Vessells: They are used in distilling per descensum.
Marbes exquitely smooth for distillations to be made in Cellars.
Pots to dissolve calcined mettalls in.
A CATALOGUE OF THE
Chirurgions Instrumets mentioned in this whole worke:

Rings wherein little Lancets lye hid,
to open Imponderables.
Trunks or hollow Instruments going with springs.
A vent, or cooleer for the wombe made like a pellary.
Hollow tents.
Sunday Cuturies, as flat, round, sharpe pointed, cutting, &c.
Constrictory rings to twitch or binde the Columns.

A Trunke or pipe with an actual Cuttery in it.
Crooked Knives, A pipe in forme of a quill:
Divers truffles with one, or more boul-
A shoulder-band to bee put about the neck, to hold up a truffle.
A needle to draw through a golden wire, &c.
Pipes with fennetells, and needles fit for future.

Cutting mullets.
Mulletts onely to hold and not to cut.
Mallets to take forth splinters of bones.
Mallets to draw teeth.
An incision knife.
Scrapers to plaine or smooth the bones, or else to cut them.
Cutting or hollow Scrapers.
A Leade[n] mallet to drive the scrapers or Chiffels into the faull.
A Gimblet in shape and use resembling that which Coopers use to lift up the funke flaves of their caske withall,
Levatories, of which kind is the three footed one,
Other Levatories, which taken by their handles, and their tongues put under the defeat bones, lift them up.

Sawes.
A defquamatory Trepan,
Plyers to take forth splinters of bones.
A Gimblet to perforate the faull.
A Trepan fit to divide the faull, with Gaffes.

cover or cap that keepes it from running in too farre.
A plate to fet one foote of the compass upon.
A cutting paire of Compalles both open and shut.
A fit instrument to depreffe the Dura Mater without hurting thereof.
A syringe to make injection withall.
A paire of Pincers with holes through them to take up the skinne for making a Seton.
Sets as well dry, as moistened with oylments.
Crowes, Parrots, straight.
Swans, Beakes, and crooked.
Duckes, these either toothed, or smooth.
Lizards, Cranes,
Catch-bullets, and Plyers to draw forth pieces of maile, and splinters of bones that lyde deep in.
Hollow and smooth Dilaters, diversly made for the different wounds of the parts.
Probes fit for to put flamulae into wounds, and these either straight, or crooked, perforated, or unperforated.
Screwed mullets to draw forth barbed heads of Arrows and the like.
Lancets to let blood, and scarifie as well straight, as crooked.
A Plyle, or Matter-drawer.
Ligatures, bands, swathes, thongs of Leather, woollen, linen, round, flat, sewne together, against some are upper binders, others under binders.
Against these are either expressing, or else containing, and that either the applied medicines, or the lips of wounds, or members put in a fit posture, which therefore they call a Farctoicke Ligature.
Thred.
Botromes, or clewes of thred, or yarne.
Pledges, compresses, boultters, doubled cloathes.
Fermes, or Splints.
Junckes.
Glossiacomies.
Ambo, a kind of Glossiacomie.
A pully, with its wheeles, and wooden
and Iron pinnes, whereon the wheeles
may runne:
Ropes as well to draw and extend, as hold
up the member, &c.
Screw pins,
A hand-vice.
Hookes.
Buttons or flaves to fatten to the skinne
to hold together the lippes of the
wounds.
Linte.
Cushions, pillowes, finnen cloathes.
Files.
Dentiscaplia, Dentiscia, Dentispcia.
Catheters, guiders of the worke.
A bathing chaire or fear, bathing tubbes,
balte tubs, caldrons, funnels, with all
other circumstances belonging to a
bath.
Stoves, or hot housles to sweate in.

Cockes to turne and let out water.
A Gimblet to breake the stone.
Hookes.
Hollow probes fit on their upper sides.
Winged Instruments to draw forth
stones,
A instrument to clenfe the bladder.
Spethulaces straight and crooked.
Cupping-glaffes.
Hornes,
Pipes or catheeters to weare Caruncles.
Artificial members, as eyes of gold enamelled, &c.
An Vinall, or cafe to fave the water in.
An artificially yard.
Crutches.
Niples, or leaden covers for fore brearts.
Griffins tallents to draw forth a Malts, out
of the wombe.
A fucking glaffe to draw a breaft withall.
Peffaries, both long and ovan.
Syrings to give glifters, as alfo to make
injection into the cares, and wombe.
THE EFFIGIES OF HIPPOCRATES OF COOS, THE PRINCE OF PHYSITIONS.

N V I C T V M

Hippocrates quod te potuere superbe
Eorumquam speciere Pegas oper,
Cecropide fronti ex aure fulgente coronam
Promeristi memores imposuere tua.
Gratia sed leviss, Aeneis tantus Athenis
Nec sibi hinc unum quam tibi partus bonos.
Nam quod qua recreare languentia corpora morbo
Peonias fueris promove largus opes.
Sed tua tam fundit, quam magni machina mundi
Gratias insignis tam tua fama volat.

BON. GRA. PARIS. MEDIC.
SELECT APHORISMS
CONCERNING CHIRURGERY, collected out of the Aphorismes of the great Hippocrates.

Apb. 27. sec. 6.

W Howerer being suppurate or hydropicall, are burnt, or cut therefore, if all the matter, or water flow forth at once, they certainly dye.

The drinking of wine, or a bath, fomentation, blood letting, or purging, helpe the paines of the eyes.

Such as have hidden, or not ulcerated Cancers, had better not to cure them. For healed they quickly dye, not cured they live the longer.

Gouty paines usuallie faire in the Spring and Fall.

Eunuches are not troubled with the Goute, neither doe they become bald.

Whoever are troubled with the Goute, have ease in forty dayes, the inflammation ceasing.

In great and dangerous wounds if no swelling appeare, it is ill.

Soft tumors are good, but crude ones ill.

For an Erysipelas, or inflammation to returne from without inwards, it is not good; but to come from within outwards, is very good.

An Erysipelas comming upon the baring of a bone, is evill.

Putrefaction, or supparation comming upon an Erysipelas is ill.

If Varices or Hæmorrhoides happen to such as are mad, their madnesse ceases.

A fluxe of blood ensuing upon a great pulsation in Ulcers is ill.

It is better that a feaver happen upon a convulsion, than a convulsion upon a feaver.

Those Ulcers that have the skinne smooth or shining about them, are evill.

The wound is deadly whereby the bladder, braine, heart, midriff, any of the small Guts, stomacke or Liver are hurt.

Whatsoever Ulcers are of a yeares continuance or more, the bone must necessarily faille, and the scarres become hollow.

The bone being affected, if the fishe be divide, it is ill.

Stupidity and lacke of reason, upon a blow of the head, is evill.

A Delirium happens if a bone (to wit, the scull) be cut even to the hollownesse thereof.
Lib. 28. Apohorisnes.

Whilst put, or matter is in generating, pains and fever happen rather than when it is already made.

Cold things are hurtful to the bones, teeth, nerves, brain, spinal marrow; but hot things are good.

Two pains infecting together, but not the same place, the more vehement obscures the other.

A corruption and abscess of the bone is caused by the corruption of the flesh.

A livid or dry ulcer, or yellowish, is deadly.

When a bone, or gristle, or nerve, or small portion of the cheek, or the prepuce is cut asunder, it neither increaseth, nor groweth together.

If any of the small guts be cut, it knits not again.

Those that have the braine phlegmate, that is, corrupt, they dye within three days; if they escape these, they recover.

Bleeding at a wound causing a convulsion, is the foreteller of death.

Cold is biting to ulcers, hardens the skin, causes pain, not easily coming to suppuration, blackness, agues, shakings, convulsions, cramps.

Whoever being suppurate are burnt or cut, if pure and white quittance shall flow forth they escape, but if that which is bloody, seeculene, and stinking, then they dye.

It is not fit to take in hand to cure such as are in a desperate case, but to leave them, only foretelling the end of the disease.

It is better to try a doubtfull remedy than none at all.

FINIS.
THE EFFIGIES OF GALEN THE
PRINCE OF PHYSITIONS NEXT
TO HIPPOCRATES.

Equum erat Hippocratem divino et semi.ne Divinum,
Orbem numeribus consiliare sibi:
Scripta sed involuit tam magni enigmatum,
Ut quamvis solus nullus habeat sequatur:
Pergami auxilio nisi sint monumenta Galeni,
Qui dolia ambages sustulit arte fenis.
Ergo mea est virtute arcana resolvendi,
Qua nulli fuerat nota (Galenus) prins;
Obstringensque orbem eterna tibi munere totali,
Aeternis sacras te quoque temporibus.

BON. GRA. PARIS. MEDIC.
RULES OF CHIRURGERY
BY THE AUTHOR.

1. Practise is an operation agreeable to the rules and laws of the Theory.

2. Health is not received by words, but by remedies fitly used.

3. Remedies knowne and approved by use and reason, are to be preferred before such as are unknowne, or but lately found out.

4. Science without experience giveth the Physitian no great credit with the patient.

5. He that would performe any great and notable worke, must diligently apply himselfe to the knowledge of his subject.

6. It is the part of a good Physitian to heal the diseafe, or certainly to bring it to a better passe, as nature shall give leave.

7. The Chirurgeon must be active, industrious, and well handed, and not truft too much to booke.

8. He that hath not beene versed in the operations of the Art, nor a frequent auditor of the Lectures of such as are learned therein, and sette forth himselfe for a brave Chirurgeon for that he hath read much, he is either much deceived or impudent.

9. He shall never do any thing praiseworthy, that hath got his mastery in Chirurgery by gold, not by use.

10. You shall comfort the patient with hope of Recovery, even when there is danger of death.

11. To change Physitians and Chirurgions is troublesome, but not good for the Patient.

12. Though the diseafe prove long, yet it is not fit that the Physitian give over the patient.

13. Great wounds of large vessels, are to be judged deadly.

14. Every contusion must be brought to suppuration.

15. As the nature or kind of the diseafe must bee knowne, so also must the remedy.

16. An Abscffe of the bone of the palatine is in danger to cause a flinking breath.

17. Bleeding caus'd by heat must be reprefed by cold.

18. Wounds of nervous parts require medicines which by the subtilty of the parts may enter in and draw from farre.

19. It is not fit for such as have Vlcers in their Legges, neither to walke, stand nor sit, but to rest themselves in bed.

20. All biring and acrid medicines are offensive to cleane Vlcers.

21. For restoring of dislocations you must hold them fast, stretch them out, and force them in.

22. A great Gangrene admits no cure, but cutting.

23. A monster is a thing dissenting from the laws of nature.

24. Wounds of the Cheif presently become fatal, and putrefacce.
The wounds made by all venemous creatures are dangerous.

An ill natured Vlcer yeilds not unless to a powerfull remedy.

The fourth wind blowing, wounded members easily become mortified.

A bath resolves and diffusses humors, and gently procures sweate.

Such as are wounded, and desire to bee quickly whole, must keep a spare diet.

Cold diseases are troublesome to old people, and hard to be helped; but in young bodies they are neither so troublesome, nor contumacious.

Vntemperate bodies doe not easily recover of diseases.

Round Vlcers unlesse they be drawne into another figure, doe not easily heale up.

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An Erysipelatous Vlcer requires purgation by foole.

Crying is good for an infant, for it serves

in stead of exercise and evacuation.

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Greffe is good for none but such as are very fat.

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Greffe is good for none but such as are very fat.

Greffe is good for none but such as are very fat.

The quittance that flows from an Vlcer is laudible, which is white, smooth and equal.

The end of the seventeenth Booke.
HOW TO MAKE REPORTS, AND TO EMBALME THE DEAD.

THE TWENTY-EIGHTH BOOK.

Ow it onely remaines that wee instruct the Chirurgeon in making or framing his report, or opinion, either of the death of any person, or of the weakness, or deprivation of any member in the function or execution of its proper office and duty. Herein it is meete that hee be very confiderate, that is to say, ingenious or wise in making his report, because the events of diseases are oftentimes doubtful and uncertain, neither can any man foresee them certainly, whether they will be for life or death, by reason of the manifold nature of the subject of which we speak, and also the uncertain condition of the humours both in their kind and motion. Which was the cause why Hippocrates even in the first of his Aphorisms pronounced, that judgement is difficult. But first of all, it is very expedient that a Chirurgeon be of an honest mind, that hee may alwayes have before his eyes a careful regard of true piety, that is to say, the fear of God and faith in Christ, and love toward his neighbours with hope of life everlasting, lest that hee being carried away by favour, or corrupted with money or rewards, should affirme or refute those wounds to bee small that are great, and those great that are small; for the report of the wound is received of the Chirurgeon according to the civil Law.

It is recorded in the works of ancient Physicians that wounds may be called great or small, for these respects.

The first is by reason of the greatness of the dissolved unity or resolution of Continuity, and such are those wounds which made by a violent stroke with a backwood, have cut off the arm, or legge, or overthrow the breast. The second is by reason of the dignity or worthinesse of the part; now this dignity dependeth on the excellency of the action, therefore thus any little wound made with a bodkin, knife, in any part whose subsistence is noble, as in the Brain, Heart, Liver.
Howionga Jong ID curing, or cle fe mottall. Therefore from the firftday it bchooveth him to
hi, judgment vyillHiewthemfelvesmanifeftly, whether they be fraallor great, according to the
in feme cas« of thc'Wotmd. ot woundcd bodyes, andthc  ftatc^fthc  ayrc according to
Su& far^hi^jiidgementofthcwounduntilltbeninth, forinthac  time  the  accidents
Generali But  generally  the  fignes,jwhereby  we  may  judge  of  difeafes.  Whether  they  bee
oSiifelf  they  are  drawne  either  from  the  nature,  and  effence  of  the  difeafe,  or  from  the  caufe
oUheiyre^  *  may  fay,tliat  all  thofe  that  are  wounded  with  gunfliot  are  in  danger  of  death  ,as  it  hap¬
saaurcdfcuU.  sj patient  fall  downe  with  the  ftroake,  if  he  lye  fenfelcffc,  as  it  were  afillce,  if
sjngnesofa  not difficult.  But you by thc  following  figncs  may  know  whac  parts  arc  wounded.
Sylsyna  But  we  may  fay,thatdeathisatbandifhisrearonandundciftandicg  failchim,  if
w.und«Bthe  hebcfpeechleffe,if  his  sightforfakehim,if  he  would  tumble  headlong  out  ofhis
patient  in  the  fame  pofture,  wherein  he  was  when  he  received  his  hurt  j  or  elfe  for
or  any other part whole action and function is necessary to preserve life, as in the
VVeant, Lungs or Bladder, is judged great. The third is, by reafon of the greatmeftc
and ill habit, or the abundance of ill humors or debility of all the wounded body,fo
those wounds that are made in nervous parts, and old decayed people, are fayd to
be great. But in healing of wounds let the Chirurgion take heed that he be not deceived by his probe. For many times it cannot goe into the bottome of the
wound but hoppeth, and licketh in the way, either because he hath not placed the
patient, in the fame posture, wherein he was when he received his hurts; or elle for
that the froke being made downe right,flift aside to the right or left hand, or elle
from below upwards, or from above downwardes, and therefore hee may expect
that the wound is but little and will be cured in a short time, when it is like to bee
long in curing, or elle mortall. Therefore from the first day it behooveth him to
fulpand his judgement of the wound untill the ninth, for in that time the accidents
will flow themselves manifeftly, whether they be small or great, according to the
condition of the wound, or wounded bodys, and the flate of the ayre according to
his primitive qualities, or venemous corruption.

But generally the fignes, whereby we may judge of difeafes, whether they bee
great or small, of long or that Continuance, mortall or not mortall, are fourc. For
they are drawne either from the nature, and effence of the difeafe, or from the caufe
ofeffets thereof, or elle from the fimilitude, proportion and comparifon, of thoce
difeafes with the fcafon or prefent conftitution of the times. Therefore if we are
called to the cure of a greene wound, whose nature and danger, is no other but a futile
solution of Continuity in the mulcifus fit fh, we may prefently pronoMcc  that
annexed unto it, that is,if it be fanious, then we may fay it will be more dilficulc
wound to be of no danger, and that it will foonc be cured. But if it have an Vlce
ample. A wound that is made with a ftiarpe pointed and heavie weapon, as with an
long in the curingj  and so we may pronounce of all difeafes, taking a figne of their
effence and nature. But of the fignes that are taken of the caufe, let this bee an ex¬
ample. A wound that is made with a harpe pointd and heavie weapone, as with a
halbard being fricken with great violence, must be accounted great, yea and also
mortall if the accidents be corresponding.

But if the patient fall to the ground through the violence of the froke, if a cho¬
lericke vomiting follow thereon, if his fight faile him, together with a giddinefle,  
if blood come forth at his eyes and nothills, if diffraction follow with loffe of mem¬
ory and fense of felling, we may fay, that all the hope of life, remaineth in one
small figne which is to be deduced from the effecfs of the wound. But by the com¬
paring it unto the fcafon that then is, and difeafes that then affault mans body, wee
may fay,that all those that are wounded with gunfhott are in danger of death, as it hap¬
pended in the fchilifhes at the feige of Roa?j and at the baftallof Saint Dr«. For
at that time, whether it were by reafon of the fault of the heavens, or ay, through
the evill humors of mans body, and the difturbance of them, all wounds that were
made by gunfhott, were for the moft part mortall. So likewise at certaine feafons of
the yeare, we fee the fmall pockes and meafels breake forth in children, as it were
by a certaine phelhit contagion to the defftruction of children oneely, inferring a
moft cruell vomit, and laske, and in fuch a feaon the judgement of thoce difeafes is
not difficult. But you by the following fignes may know what parts are wounded.

If the patient fall downe with the froke, if he lye fencelfe, as it were allepee, if he
voide his excrements unwittingly, if he be taken with giddineffe, if blood come out
at his eares, mouth, and nofe, and if the vomit choller, you may understand that
the fcuill is fractured, or peared through, by the defect in his underftanding and dif¬
course. You also may know when the fcuill is fractured, by the judgement of your
externall fenes, as if by feeling it with your finger you finde it elevated or depreffed
beyond the natural limits, if by tricking it with the end of a probe, when the Peri¬
cranium or nervous fime that inwelleth the fcuill is cut croffe wise; and fo divided
there from it, yeeld a bafe and unperfecfion found like unto a pot heard that is broken,
or rather like unto an earthen pitcher that hath a cleft, or rent therein.

But we may fay, that death is at hand if his reafon and underftanding faile him, if
he be speechlefe, if his fight forfake him, if he would tumble headlong out of his
bed
bed, being not at all able to move the other parts of his body; if he have a continual fever, if his tongue be blacke with dryness, if the edges of the wound bee black or dry, and call forth no dangerous matter, if they resemble the colour of faded flesh, if he have an apoplexy, phrenie, convulsion or palsy with an involuntary excretion, or absolute supposition of the Vrinc and excrements. You may know that a man hath his throat, that is, his windpipe cut. First by the sight of his wound, and next by the abolition of the function or office thereof of both ways, for the patient can neither speak nor swallow any meate or drink; and the parts that are cut asunder, divide themselves by retraction upwards or downwards one from another, whereof commeth fatale or present death. You may know that a wound hath pierced into the brest or concavity, of the body, if the aire come forth at the wound, making a certaine whizzing noise, if the patient breathe with great difficulty, if he have a great heaviness or weight, on or about the midriff, whereby it may be gathered that a great quantity of blood, lyeth on the place or midriff, and so causeth him to feel a weight or heaviness, which by little and little, will bee call up by vomiting. But a little after a fever commeth, and the breath is unavory, and sinking, by reason that the putrefying blood is turned into fumes: the patient cannot lye but on his backe, and he hath an often desire to vomit, but if he escape death, his wound will degenerate into a Fistula, and at length will consume him by little and little.

We may know that the Lungs are wounded, by the foaming and spumous blood, comming our both at the wound and call up by vomiting; he is vexed with a grievous shortness of breath and with a paine in his sides. We may perceive the Heart to be wounded by the abundance of blood that commeth out at the wound, by the trembling of all the whole body, by the faint and small pulse, paleness of the face, and cold sweate, with often watering, collyne of the extreme parts, and sudden death.

When the midriff, (which the Latines call Diaphragma) is wounded, the patient feeleth a great weight in that place, he caveth and talketh idly, he is troubled with shortness of wind, a cough, and fit of grievous paine, and drawing of the entrails upwards. Wherefore when all these accidents appeare, we may certainly pronounce that death is at hand.

Death appeareth suddenly, by a wound of the hollow Veine, or the great Artery, by reason of the great and violent evacuation of blood and spirits, whereby the functions of the Heart and Lungs are stopp'd and hindered. The marrow of the backe being pierced, the patient is afflicted with a Palsey or convulsion very suddenly, and fence and motion failth in the parts beneath it, the excrements of the bladder, are either evacuated against the patients will, or else are altogether stopp'd.

When the Liver is wounded, much blood commeth out at the wound, and prickinge paine disperseth it self into the sword-like gristle, which hath its situation at the lower end of the brest bone called Sternum; the blood that failth from thence downe into the intestines doth oftentimes inferre most maligne accidents, yea and sometimes death.

When the stomack is wounded, the meate and drink come out at the wound, there followeth a vomiting of pure choler, then commeth sweating and collyne, of the extreme parts, and therefore we ought to prognosticate death to follow such a wound.

When the Spleene is wounded, blacke and grosse blood commeth out at the wound, the patient will be very thirsty, with paine on the left side, and the blood breaks forth into the belly, and there putrifying causeth most maligne and grievous accidents and often times death to follow.

When the guts are wounded, the whole body is gripped and pained, the excrements come out at the wound, whereas also often times the guts break forth with great violence.

When the reins or Kidneys are wounded, the patient will have great paine in making his Veine, and the blood commeth our together therewith, the paine commeth downe even unto the groine, yard, and testicles.
The bladder. When the bladder and Victers are wounded, the paine goeth even unto the entrails; the parts all about, and belonging to the groin are distended, the Vrime is bloody that is made, and the same also commeth often times out at the wound.

When the womb is wounded, the blood commeth out at the privities, and all other accidents appear, like as when the bladder is wounded.

The Nerve. When the fine was pricked or cut haile aunder, there is great paine in the affected place, and there followeth a sudaine inflammation, fluxe, absccese, fever, convulsion, and oftentimes a gangrene or mortification of the part, whereof commeth death, unlefe it be speedily prevented.

Having declared the figures and tokens of wounded parts, it now remaineth that we set downe other figures of certaine kinds of death that are not common, or natural, whereabout when there is great strife and contention made, it oftentimes is determined and ended by the judgement of the discreete Physitian or Chirugion.

Signes that an infant is smothered, or overkilled.

Therefore if it chance that a nurfe either through drunkenneffe, or negligence, lyes upon her infant lying in bed with her, and so stifles or smothereth it to death. If youe judgement be required, whether the infant dyed through the default, or negligence of the nurfe? or through some violent or sudaine diseases that lay hidden and lurking in the body thereof? You shall finde out the truth of the matter by these signes following.

For if the infant were in good health before, if hee were not froward or crying, if his mouth and nostrils now being dead, be mov'd or bedewed with a certaine sorrow, if his face be not pale but of a Violet or purple colour, if, when the body is opened the Lungs be found owne and puffed up, as it were with a certaine vaporous foam and all the other entrails found, it is a token that the infant was stifled, smother'd or strangled by some outward violence.

If the body or dead corpes of a man be found lying in a field, or house alone, and you be called by a magistrate to deliver your opinion, whether the man were slain by lightning or some other violent death? you may by the following signes finde out the certainty thereof.

For every body that is blast'd, or striketh with lightning, doth cast forth or breathe out an unselftike, stinking or sulphurous smell, so that the birds or fowles of the ayre, nor dooges will not once touch it, much leffe prey or feede on it; the part that was striketh often times found, and without any wound, but if you search it well, you shall finde the bones under the skine to be bruised, broken or shivered in pieces.

But if the lightening hath pierced into the body, which making a wound therein (according to the judgement of Pliny) the wounded part is farre colder than all the rest of the body. For lightning driveth the most thine and fiery ayre before it, and striketh it into the body with great violence, by the force whereof the heat that was in the part is soon disperst, wasted and consumed. Lightening doth always leave some impression or signe of same fire either by unior or blackneffe: for no lightning is without fire.

Moreover whereas all other living creatures when they are striketh with lightening fall on the contrary side, onely man falleth on the affected side, if hee be not turned with violence toward the coast or region from whence the lightening came.

If a man be striketh with lightening while he is asleepe, hee will be found with eyes open, contrarywise, if hee be striketh while hee is awake, his eyes will be closed (as Pliny writeth: Philip Commynes writeth that those bodies that are striketh with lightning are not subject to corruption as others are.

Therefore in ancient time it was their custome neither to burne, nor bury them, for the braise to which the lightning bringeth it, was unto them in field of salt, for that by the dryneffe and fiery heat thereof it did preserve them from putrefaction.

Also it may be enquired in judgement, Whether any that is dead and wounded, recei
received these wounds alive or dead. Truly the wounds that are made on a living man, if he dye of them, after his death will appear red and bloody, with the sides or edges swollen, or pale round about: contrary wise, those that are made in a dead man, will bee neither red, bloody, swollen, nor puffed up. For all the faculties and functions of life in the body doe cease and fall together by death; so that thenceforth no spirits nor blood can be sent, or flow unto the wounded place. Therefore by these signs which shall appear, it may be declared that he was wounded dead or alive.

The like question may come in judgement when a man is found hanged, whether he were alive, or dead. Therefore if he were hanged alive, the impression or print of the rope will appear red, pale, or black, and the skinne round about it will be contracted or wrinkled, by reason of the compaction which the cord hath made; also often times the head of the effera arteria is rent and torn, and the second spondide, and the necke luxated or moved out of his place. Also the arms and legs will be pale, by reason of the violent and sodaine suffocation of the spirits: moreover there will be a foame about his mouth, and a foamy and filthy matter hanging out at his nofethrills, being sent thither both by reason that the Lungs are sodainely heated and suffocated; as also by the convulsive concussion of the braine like as it were in the falling fuleffe. Contrariwise, if he be hanged dead, none of these signs appeare: for neither the print of the rope appeares red or pale, but of the same colour as the other parts of the body are, because in dead men the blood and spirits doe not flow to the greeved parts.

Whoever is found dead in the waters, you shall know whether they were thrown into the water alive or dead. For all the belly of him that was throwne in alive, will be swollen, and puffed up by reason of the water that is contained therein; certaine clammy excemements come out at his mouth and fnefthrills, the ends of his fingers will be worne and excoriated, because that hee dyed striving and digging or scraping in the fand or bottome of the river, seeking somewhat whereon hee might take hold to save himselfe from drowning. Contrariwise if he be throwne into the waters being dead before, his belly will not be swollne, but by reason of a certaine vapour, into which a great portion of the humors of the body are converted by the efficacy of the purifying heate. Therefore this swelling appeareth not in all men which doe perishe or are cast out dead into the waters, but only in them which are corrupted with the filthinesse or muddinesse of the water, long time after they were drowned, and are cast on the shore.

But now I will declare the accidents that come to those that are suffocated and shotted with the vapour of kindled or burning charcoals, and how you may foretell the causes thereof by the history following. In the yeere of our Lord God 1575, the tenth day of May, I with Robert Greauinge Doctor of Phyficke, was sent for by Master Thomas an advocate of the Court of Parliament of Perde, to see and shew my opinion on two of his servants, of whom the one was his Clarke, and the other his Horf-keeper. All his family supposeth them dead, because they could not perceive or feel their Arteries to beate, all the extreame parts of their bodys were cold, they could neither speake nor move, their faces were pale and wan, neither could they bee raised up with any violent beating or plucking by the hair. Therefore all men accounted them dead, and the question was only of what kind of death they dye, for their master suspected that some body had strangled them, others thought that each of them had flappe one anothers wandle with their hands: and others judged that they were taken with a sodaine apoplexy. But I presently enquired whether there had bene any fire made with Coales in the house lately, where
whereunto their matter giving care, sought about all the corners of the chamber (for the chamber was very little and close) and at last found an earthen panne with charcoale halfe burned; which when we once saw, we all affirmed with one voyce, that it was the cause of all this misfortune, and that it was the maligne fume and venemous vapour, which had smothered them, as it were by flopping the passages of their breath. Therefore I put my hand to the regions of their hearts, where I might perceive that there was some life remaining by the heat and pulsacion that I felt, though it were very little, wherefore we thought it convenient to augment and creafe it. Therefore first of all, artificially opened their mouthes, which were very fadt elofed, and (licking obstinately together, and thereinto both with a fpoone and alfo with a silver pipe, we put aqua vitæ often diftilled with dissolved hierA and treacle, when we had injected the medicines often into their mouthes, they began to moove and to stretch themfelves, and to caft up and expell many vifeous excre- meat all and filthy humors at their mouth and noftrells, and their Lungs seemed to be hot, as it were in their throates.

Therefore then we gave them vomitories of a great quantity of Oxymel, and beate them often violently on the laft lpondill of the backe, and first of the loynes, both with the hand and knee (for unto this place the orifice of the ftomacke is turned) that by the power of the vomitory medicines, and concuflion of the ftomacke, they might be constrained to vomir. Neither did our purpose faile us, for prefently they voided clamme, yellow and fpumous flame and blood. But wee not being content with all this, blowed up into their noftrells out of a Goofe quill, the powder of Euphoriium, that the expulfivc faculty of the braine might be ftirred up to the expulfion of that which oppreffed it; therefore prefently the braine being shaken, or mooved with fneefing and inftiraulated thereunto by rubbing the chymicall oyle of mints on the palate and on the chckes, they expelled much vifeous and clamme matter at their noftrells.

Then we used frictions of their armes, legges, and backe-bones, and miniftered fharpe glifters, by whose efficacie the belly being abundantly loofened, they beganne prefently to speake and to take things that were miniftered unto them of their owne accord, and fo came to themselves again.

In the doing of all these things, James Guillemeau Chirurgeon unto the King, and of Paris, and John of Saint Germaine the Apothecary, did much help and further us. In the afternoone that the matter being well begunne might have good fucceffe, John Hautie, and Louis Thibaut, both moft learned Phiftions, were sent for unto us, with whom we might confult on other things that were to be done. They highly commending all things that we had done already, thought it very convenient that cordials should be miniftered unto them, which by ingendering of laudable humors, might not onely generate new fpirits, but alfo attenuate and purifie thofe that were greffe and cloudy in their bodies. The refit of our consultation was fpent in the enquire of the caufe of fo dire a muffiance. For they fayd that it was no new or strange thing, that men may be fmothered with the fume and cloudy vapour of burning coales.

For we reade in the workes of Fulgo[itts], Patercrusus and Egнатius, that as the Em- perour Iovinianus, travelled in winter time toward Rome, he being weary in his jour- ney, refted at a Village called Didafanes, which divideth Bithymia from Galatia, where he lay in a chamber that was newly made, and plaiftered with lime, wherein they burnt many coales, for to dry the worke or plaiftering, that was but as yet greene on the walls or roofe of the chamber. Now he dyed the very fame night being fmothered or frangled with the deadly and poyfonous vapour of the burned charcoale, in the midft of the night; this happened to him in the eighth moneth of his reign, the thirtieth yeere of his age, and on the twentieth day of August. But what neede we to exemplifie this matter by the ancient histories, seeing that not man- y yeeres since three fervants dyed in the house of John Rigino goldsmith, who dwel- leth at the turning of the bridge of the Change, by reafon of a fire made of coales in a close chamber, without a chimney where they lay. And as concerning the caufes, thes
Thee were all called. Many were of opinion that it happened by the defect of the
vapour proceeding from the burned coals, which being in a place void of all ayre
or wind, interres such like accidents as the vapour of new wine doth, that is
to say, taint, and giddiness of the head. For both these kinds of vapour besides
that they are crude, like unto those things whereof they come, can also very sud-
dainly obstruct the original of the Nerves, and so cause a convulsion, by reason of
the grofiness of their substance.

For to Hippocrates writing of those accidents that happen by the vapour of new
wine, speaketh, If any man being drunken doe suddenly become speechless and
hath a convulsion, he dyeth unless he have a fever therewithall; or if he recover not
his speech againe when his drunkenneffe is over.

Even in the same manner the vapour of the coales affaulting the braine caused
them to be speechless, unmovable and void of all sense, and had dyed shortly
uneffe by ministring and applying warme medicines into the mouth and to the
nostrills, the grofiness of the vapour had beene attenuated, and the expulsive fa-
culccses moved or provoked to expel all those things that were noyforme; and also
although at the first fight the Lungs appeared to be greeved more than all the other
parts, by reason that they drew the maligne vapour into the body, yet when you
consider them well, it will manifestly appeare that they are not greeved, unless it
be by the sympathie or affinity that they have with the braine when it is very gree-
voufly afflicted.

The proofe hereof is, because presently after, there followed an interception or
defect of the voyce, sense and motion: which accidents could not bee unless the be-
ginning or original of the nerves were intercepted or letteth from performing its
function, being burthened by some matter contrary to nature.

And even as those that have an apoplexye do not dye but for want of respira-
tion, yet without any offence of the Lungs, even so these two young mens deceaseth
were at hand, by reason that their respiration or breathing was in a manner altogether
interrupted, not through any defect of the Lungs, but of the braine and nerves
distributing sense and motion to the whole body and especially to the instruments
of respiration. Others contrariwise contended and sayd, that there was no defect in
the braine, but conjectured the interception of the vital spirits letted or hindered
from going up into the braine from the heart, by reason that the passages of the
Lungs were stoped, to be the occasion that sufficient matter could not be afforded
for to pererve and feed the animal spirit. Which was the cause that those young
men were in danger of death, for want of respiration, without the which there can
be no life.

For the heart being in such a case, cannot deliver it selfe from the fuliginous
vapour that encompasseth it, by reason that the Lungs are obstructed by the
grofiness of the vapour of the coales, whereby inspiration cannot well bee
made, for it is made by the compailling ayre drawn into our bodies: but the ayre
that compaillith us doth that which nature endeavoureth to doe by inspiration, for
it moderated the heat of the heart, and therefore it ought to bee endued with
diverse qualities. The first is, that the quantity that is drawne into the body bee suf-

cient. The second is, that it bee cold, or temperate in quantity. The third is, that
it be of a thinnne and meane consistence. The fourth is, that it bee of a gentle and
beneigne subsance.

But these four conditions were wantinge in the ayre which these two young men
drew into their bodies being in a close chamber;

For first, it was little in quantity, by reason that small quantity that was contained
in that little close chamber, was partly consumed by the fire of coales, no otherwise
than the ayre that is contained in a cuppeing glase is consumed in a moment by the
flame so soon as it is kindled.

Furthermore it was neither cold nor temperate, but as it were enflamed with
the burning fire of coales.

Thirdly, it was more grofse in consistence than it should bee by reason of the adm-
ixture of the grofier vapour of the coales: for the nature of the ayre is so that it

may bee some altered, and will very quickly receive the forms and impressions of those substances that are about it.

Lastly, it was noyome and hurtfull in substance, and altogether offensive to the airy substance of our bodies. For Charcoale are made of greene wood burnt in pits under ground, and then extinguished with their owne fume or smoke, as all Colliers can tell. There were the opinions of most learned men although they were not altogether agreeable one unto another, yet both of them depended on their proper reasons. For this at least is manifest, that those passages which are common to the breath and braine, were then stopped with the grossest of the vapour of the coales: whereby it appeareth that both these parts were in fault, for so much as the content and connexion of them with the other parts of the body is so great, that they cannot long abide found and perfect without their mutual helpe by reason of the loving and friendly sympathy and affinitie that is betweene all the parts of the body one with another.

Wherefore the ventricles of the braine, the passages of the lungs and the sleepe Arteries being stopped, the vital spirit was prohibited from entering into the braine, and consequently the animal spirit retained and kept in, so that it could not come or dispersse itself through the whole body, whence happened the defecte of two of the faculties necessary for life.

It many times happeneth and is a question too frequently handled concerning womens maideheads; whereof the judgement is very difficult. Yet some ancient women and Midwives will bragg that they assuredly know it by certaine and infallible signifies. For (say they) in such as are virgins there is a certaine membrane or parchment-like skin in the nekke of the womb, which will hinder the thrusting in of the finger if it be put in any thing deepe, which membrane is broken when first they have carnall copulation, as may afterwards be perceived by the free entrance of the finger. Besides, such as are defaughterd have the nekke of their womb more large and wide; as on the contrary, it is more contracted, straite and narrow in virgins. But how deceitfull and untrue these signifies and tokens are, shall appeare by that which followeth; for this membrane is a thing preternatural, and which is scarce found to be in one of a thousand from the first conception. Now the nekke of the wombe will be more open or straite according to the bignesse of the party. For all the parts of the body have a certaine mutual proportion and commeneration in a well made body.

Averbis hath written, that at Escampy, a woman was delivered of a child in the ninth yeare of her age, and that she is yet alive and called Josue du Perih being wife to Pidean Beeke the receiver of the amercements of the King of Navarre. which is a most evident argument, that there are some women more able to accompany with a man at nine yeares old, than many other at fifteene, by reason of the ample capacity of their wombbe and the nekke thereof. Besides also, this passage is enlarged in many by some accident, as by thrusting their owne fingers more strongly thereinto by reason of some itching, or by the putting up of a Nodule, or Peflarie of the bignesse of a mans yard, for to bring downe the courses. Neither to have milke in their breasts is any certaine signe of lost virginity; For Hippocrates thus writes; But if a woman which is notye with child, nor hath had one, have milke in her breasts, then her courses have failed her.

Moreover, Aristotle reports that there be men who have such plenty of milke in their breasts, that it may be sucked or milked out. Cardan writes, that he saw at Venice one Antony Ossey some 30. years old, who had milke in his breasts in such plenty, as sufficed to suckle a child, so that it did not only drop, but spring out with violence like a womens milke. Wherefore let Magistrates beware leaft thus admonished, they too rashly affent to the reports of women. Let Physitians and Chirurgions have a care leaft they doe too impudently bring magistrates into an errour, which will not redound so much to the judges disgrace, as to theirs.

But if any desire to know, whether one be poynoned, let him search for the Symptoms and signes in the foregoing and particular treatise of poynons. But that this doctrine
doctrine of making Reports may be the easier, I think it fit, to give presidents, in imitation whereof the young Chirurgeon may frame others. The first president shall be of death to ensue, a second of a doubtfull judgement of life and death, the third of an impotency of a member, the fourth of the hurting of many members.

I.A.-P. Chirurgeon of Paris, this twentieth day of May by the command of the Counsell, entred into the house of John Brossy, whom I found lying in bed, wounded on his head, with a wound in his left temple, piercing the bone with a fracture and effraction, or depression of the broken bone, feailes and meninges into the substance of the braine, by means whereof, his pulse was weaker, he was troubled with yawning, convulsion, cold sweate, and his appetite was despaired. Whereby may bee gathered that certaine and speedy death is at hand. In witnesse whereof I have signed this Report with my owne hand.

By the Coroners command I have visited Peter Lucey, whom I found sick in bed, being wounded with a Halbard on his right thigh. Now the wound is of the breadth of three fingers, and so deepethat it pierces quite through his thigh with the cutting also of a vein and Artery, whence ensued much effusion of blood, which hath exceedingly weakened him, and caused him to be wound often; now all his thigh is swollen, livide, and gives occasion to feare worse symptomes, which is the cause that the health and safety of the party is to be doubted of.

By the Justices command I entred into the house of James Berty, to visite his owne brother. I found him wounded in his right harme, with a wound of some foure fingers bignesse, with the cutting of the tendons bending the legge, and of the Veines, Arteries, and Nerves. Wherefore I affirme that he is in danger of his life, by reason of the maligne symptomes that usually happen upon such wounds, such as are great paine, a feaver, inflammation, abscesse, convulsion, gangrene and the like. Wherefore he stands in neede of provident and carefull dressing, by benefit whereto if he escape death, without doubt he will continue lame, during the remainder of his life, by reason of the impotency of the wounded part. And this I affirms under my hand.

We the Chirurgions of Paris, by the command of the Senate, this twentieth day of March, have visited Master Lewis Vertman, whom we found hurt with five worndes. The first inflicted on his head, in the middle of his forehead bone, to the bignesse of three fingers, and it penetrates even to the second table, so that we were forced to plucke away three splinters of the same bone. The other was atwbarth his right cheek, and reneched from his ear, to the midit of his nose, wherefore were stiched it with foure stitches. The third is on the midit of his belly, of the bignesse of two fingers, and so deepethat it ascends into the capacity of the belly, so that we were forced to cut away portion of the Kall, comming out thereat, to the bignesse of a walnut, because having lost its naturall colour, it grew blacke and purifid. The fourth was upon the backe of his left hand, the bignesse almost of a soure finger, with the cutting of the Veines, Arteries Nerves and part of the bones of that part, whence it is, that he will be lame of that hand, howsoever carefully and diligently handled.

Now because by hurting the spinall marrow, men become lame, sometimes of a legge, it is fit you know that the spinall marrow descends from the braine like a rivel for the distribution of the Nerves, who might distirbute fene and motion to all the parts under the head, wherefore if by hurting the spinall marrow, the patients armes or hands are resolved or numme, or wholly without fene, it is a signe thosc Nerves are hurt which come forth of the fith, fith, seventh vertebre of the necke. But if the same accidents happen to the thigh, legge or foote with refrigeration, so that the excrements flow voluntartily, without the patients knowledge, or else are totally suppressed, it is a signe that the linewes which proceed from the vertebre of the loynes and holy bone are hurt or in fault, for that the animall facultie bestowing fene and motion upon the whole body, and the benefit of opening and shuttind to the sphinter muscle of the bladder and fundament, cannot flow its self in these parts, by which means suddaine death happens, especially if there be difficulty of breas thing therewith.
Being to make report of a child killed with the mother, have a care that you make a difference report, whether the child were perfect in all the parts and members thereof, that the judge may equally punish the author thereof. For he merited farre greater punishment, who hath killed a child perfectly shaped and made in all the members; that is, he which hath killed a live child, than he which hath killed an Embryo, that is, a certaine concretion of the spermatick body. For Moses punished the former with death, as that he should give life for life, but the other with a pecuniary summe. But I judge it fit to exemplifie this report by a presidet.

I P* by the Judges command visted Mistress Margaret Flaminia whom I found sick in bed, having a strong fever upon her, with a convulsion and effulce of blood out of her worbe, by reason of a wound in her lower belly, below her navel on the right side, penetrating into the capacity of her belly, and the womb therein; whence it hath come to passe, that she was delivered before her time, of a male childe, perfect in all his members but dead, being killed by the same wound piercing through his skull, into the marrow of the braine. Which in a short time will be the death of the mother also. In testimony whereof I have put my hand and seale.
after the separation of the soul from the body, they were more negligent in building their houses they dwelt in, but in raising the pyramids which should serve them instead of sepulchers, they were so beyond reason luxurios and magnificent, that for the building of one of these edifices so renowned over all the world, which King Chæphes begun, a hundred thousand men were every 3 months, for twenty yeares space there kept at work: it was five furlongs, and being square, each side was 8oo. foot long, and is much in height. Almost all the pieces of marble went to the building thereof, were thirty fute long, engraved and carved with various worke-manship, as Herodotus reports. But before the bodies were committed to the magnificent sepulchers, they were carried to the Salters and Embalmers, who for that purpose had allowance out of the publicke stocke. These embellished them with aromaticke, and balsamick oynments, and fowed up the incisions they made, then Apparelled them over with falt, and then covered them with brine, for 70. days; which being expired, they washed them, being taken thence, and all the silt being taken off, they wrapped them in Cotton clothes, glewed together with a certaine gumme, then their kinde men placed them thus ordered in a wooden Coffin carved like a man. This was the facred and accustomed rite of embalming and burying dead bodies amongst the Egyptians which were of the richer sort. Our Countries men the French stirred up with the like desire, embalmed the bodies of their Kings and Nobles, with spices and sweete oynments. Which Custom they may seeme piouilly and christianly to have taken from the Old and New Testament, and the ancient and laudable custom of the Levites; for you may read in the New Testament that Joseph bought a fine linen cloth, and Nicodemus brought a mixture of myrrhe and aloes about 100. pound weight, that they might embalm and bury the body of Jesus Christ our Saviour, for a signe and argument of the renovation and future integrity which they hoped for by the resurrection of the dead. Which thing the Jews had received by tradition from their ancestors. For Joseph in the old Testament commanded his Physicians, they should embalm the dead body of his father with spices.

But the body which is to be embalmed with spices for very long continuance, must first of all be embowelled, keeping the heart apart, that it may be embalmed and kept as the kinde men think it. Also the braine, the scull being divided with a faw, shall be taken out. Then shall you make depe incisions along the armes, thighs, legsges, backe, loynes and buttocke, especiallie where the greater Veines and Arteries runne, first that by this means the blood may be pressed forth, which otherwise would putrifie and give occaition and beginning to putrefaction to the rest of the body; and then that there may be space to put in the aromaticke powders; the whole body shall be wafted over with a spunge dipped in Aqva vitae, and strong vinegar, wherein shall be boyled wormwood, aloes, coloquintida, common falt and Alume. Then these incisions, and all the passages and open places of the body, and the three bellyes shall be stuffed with the following spices grossely powdered. R. palmarum, chamom, meli, balsamin, muske, anethi, salvia, isom, rosemar, majore, thyme, altantho, express, calamini aromata, gentianae, etreps, aedera, carophyllic, mucia, molchat, cinamoni, bryatis, zaluminae, benoni, myrrhae, aloes, santal, omonium quod sufficit. Let the incisions be fowed up and the open places that nothing fall out, then forthwith let the whole body be anointed with Turpentine dissolved with oyle of rofes and Chamomile, adding if you shall thinke it fit, some Chymicall oyes of spices, and then let it be againe fowed over with the forementioned powdered, then wrap it in a Cotton cloth, and then inicare clothes. Lastly, let it be put in a Coffin of Lead, foretouched and filled up with dry sweete heartes. But if there be no plenty of the forementioned spices, as it usuall happens in besieged towne, the Chirurgion shall be contented with the powder of quenchd lime, common ashes made of Oak wood.

For thus the body being over and above wafted in strong vinegar, or Lie, shall be kept a long time, if so be that a great and disolving heat do not bear away, or if it be not put in a hot and moist place. And this condition of time and place is the cause why the dead bodies of Princes and Kings, though embalmed with Art and care, Cæcæa within...
How to make Reports, and to Embalm the Dead. Lib. 28.

Within the space of six or seven days, in which they are kept to be shewed to the people after their embalming, doe caij forth so greevous a stench, that none can endure it, so that they are forced to be put in a leaden Coffin. For the ayre which encompasseth them growth so hot by reason of the multitude of people flowing to the spectacle, and the burning of lights night and day, that the small portion of the native heat which remaineth being dissipated, they easily putrefie, especially when as they are not first moistened & macerated in the liquor of aromaticke things, as the Egyptians anciently used to do, steeping them in brine for 70 days, as I formerly told you out of Herodotus. I put in minde hereby, ufe, that to the embalming may become the more durable, to steep the bodyes (being embowelled, and pricked all over with sharpe bodkinnes, that to the liquor hindring putrefaction may penetrate the deeper into them) in a woorden tubbe filled with strong vinegar of the decoction of aromaticke and bitter things, as Aloe, Rue, Wormwood, and Colophonid, and there steep them for twenty days, pouring thereinto eleven or twelve pints of Aquavite. Then taking it forth, and setting it on the fire, I keep it in a clear and dry place. I have at home the body of one that was hanged, which I begged of the Bishop, embalmed after this manner, which remains found for more than 25 yeares, so that you may tell all the muscles of the right side (which I have cut up even to their heads, and plucked them from those that are next them for distinctions sake, that so I may view them with my eyes, and handle them with my hands as often as I please, that by renewing my memory I may work more certainly and surely, when as I have any more curious operation to be performed) the left side remains whole, and the Lungs, Heart, Diaphragma, Spleene, Kidneyes, beard, hairs, yea and the nailes, which being pared, I have often observed to grow againe to their former bignesse.

And let this be the bound of this our immense labour, and by Gods favour out self; to whom Almighty, all-powerfull, immortal and invisible, be ascribed all honour and glory for ever, and ever, Amen.

Labor improbus annia vinces.

The end of the Treatise of reports, and embalming the dead.
THE APOLOGIE
AND TREATISE, CONTAINING THE VOYAGES MADE INTO DIVERS PLACES.

BY
AMBROSE PARE of Laval in Maine, Counsellor and cheefe Chirurgeon to the King.

The Twenty-ninth Booke.

Rudely I had not put my hand to the penne, to write on such a thing, were it not that sorne have impudently injured, taxed, and more through particular hatred, disgraced me, than for zeal or love they beare to the publicke good, which was, concerning my manner of tying the Veines and Arteries, writing thus as followeth.

Maleficiam & nimium arroganter inconscientes & temerarim quidam, ususorum usumem post emouerat membri reflexionem a veteribus omnibus plurium commendatam semper probatam damnare auxu eff, nunc quendum deliogendi usus usque mediocris contra veteres omnne medicos fines rationem, experientia & iudicio adscire cupiens, nec animadvertit majora multa pericula ex ipsa ususorum deligitatione quam su partum sanam profunde transficere administrari visuit, imminere quam ex ipsa usione. Nam si seus nervosum aliquam partem, vel nervum ipsum popuerit, dum usum & sustinato modo vosnam obviam de contum constringere, nova iniam.NotNullis necessario consequitur, a quia Connuimus & a concussione sita mori. Quorum symptomatum metu Galenus non ante transferre numera saepe an.imabat (quod tamen minus erat periculosum) quam magis his urbis atque urbis in hoc desiderat, Addes quod fors persequi quibus post sectionem iterum casum allevias, cum retrahs versus originem usus fe possit extrahere somniat, non omnem adscire deleros quodmigitam, sententia admota. Quod si quis maximus expertus incoluisse consenserit, illi Deo optimo maximo cuius beneficentia coronatae ipsa & carnisque liberata est, maximus gratias habere & semper agere deserez, which is thus: IIII then, and too arrogantly a certaine indifferet, and rash person would blame and condemn the cautelizing of vealls after the amputation of a rotten and corrupted member, much praised and commended and always approved by the Ancient Phyations, taking no heede, nor being well advisfed, that there happens faire greater perills, and accidents, through this new way of
tying the vessels (which he will have to be made with a needle, piercing deeply the found part) than by the burning and infliction of the said vessels, for if the needle shall prick any nervous part, ye the nerve it self, when he shall by this new and unaccustomed way abruptly constraine the vein by binding it, there must necessarily follow a new inflammation; from an inflammation a convulsion, from a convulsion death: for fear of which accidents, Galen never durft stitch transferrall wounds, (which notwithstanding were less dangerous) before he had discovered the Apotheorates of the muscles. Moreover the pincers with which after the fission, the flesh is again disarranged, while he thinks to draw the vessels out which are drawn in toward their original, bring no leefe paine than the cautering iron doe. And if any one having experimented this new manner of cruelty have escaped danger, he ought to render thanks to almighty God forever, through whose goodness he hath beene freed from such tyranny, feeling rather his executioner than his methodical Chirurgion.

O what sweet words are these for one, who is fayd to be a wise and learned Doctor? he remembers not that his white beard admonisheth him, not to speake any thing unworthy of his age; and that he ought to put off and drive out of him all envious and dencor conceived against his neighbour. So now will I prove by authority, reason and experience, that the said Veines and Arteries ought to be tye.

Authorities.

As for Authorities, I will come to that of that worthy man Hippocrates, who wils and commands the cure of Fistula’s in the fundament by ligature, as well to consume the callority, as to avoid hemorrhage.

Galen in his method, speaking of a fluxe of blood made by an outward cause, of whom he here the words, It is (faith he) most sure to tye the toothe of the vessel, which I understand to be that which is most neere to the Liver, or the heart.

Asecum commands to tye the vein and the Arterie after it is discovered, towards his original.

Guido of Cauliace, speaking of the wounds of the Veines and Arteries, enjoyneth the Chirurgeon to make the ligature in the vessel.

Maffer Holler speaking of a fluxe of blood, commands expressily, to tye the ve machinery.

Caius in the chapter of the wounds in the Veines and Arteries, tells a most sure way to stay a fluxe of blood, by ligature of the vessel.

Caelius from whom the said Physitian hath snatcht the most part of his booke, chargeth expressily, to tye the ve ineffe in a fluxe of blood happening to wounds, as a remedy most eafe and most sure.

Vellius in his Chirurgery, willeth that the vessels be tye in a fluxe of blood.

John de Pigge treating of a hemorrhagie in bleeding wounds, commands to tye the Veine, and the Artery.

Tyrannius treating of the means to stay a fluxe of blood, commands to pinch the Veine or Artery with a Crow or Parrots bill, then to tye it with a very strong thred.

Peter of Argilata of Bellongue, discoursing of a fluxe of blood, and the means to stoppe it, giveth a fourth way expressily, which is made by ligature of the vessels.

John Andrea a Cuciu, a Venetian, makes mention of a method, to stay a fluxe of blood by the ligature of the vessels.

D’ Alchamp commands to tye the Veines, and Arteries.

See then (my little good man) the authorities which command you to tye the ve ineffes. As for the reasons, I will debate of them.

The hemorragie (lay you) is not so much to be feared in the section of the Call as that of the Varices; and the incision of the temporall Arteries, as after the amputation of a member. Now you your selfe command, that in cutting the Varices, the fluxe of blood be stopped by the ligature of the vessels. You command the same, speaking
speaking of the fist, with the apputation and section of the Call, changed by the outward way, see heere your owne wordes: After that must bee considered concerning the Call: for if there be any part corrupted, putrid, withered, or blackish. First having tyed, for fearre of a fluxe of blood, you do not bid afterward to have it cauterized, but to say the truth, you have your eyes shut, and all your senses dulled, when you would speake against to use a method, and that it is not but through anger, and an ill will. For there is nothing which hath more power to drive reason from her seare, than choler and anger. Moreover when one comes to cautere the diseased parts, oftentimes when the scar comes to fall off, there happens a new flux of blood: As I have seen divers times, not having yette beene inspired by God, with so fewe a means then, when I used the bene of fire. Which if you have not found, or underfoold this method in the booke of the Ancients, you ought not thus to treat it under your seare, and speake unskilfully of one who all his life hath preferred the preeminence of the Common-wealth before his owne particular. Is it not more than reasonable to bee founded upon the faying of Hippocrates, upon whose authority you serve your selfe, which is thus? That what the medicament cureth not, the iron doth, and what the iron doth not amend, the fire exterminateth. It is a thing which favours not of a Christian, to fall to burning at the first day without our having for any more gentle remedies. As you your selfe write, speaking of the conditions required in a Chirurgion to cure well which page you borrow from romc other place I for that which now happeneth in the books

In the chapter of burning, it is not.
In the first book of the Art of
Hippocrates,
Book the 6.
In the books of Gelen, and
Of what else, it is not.

N ow fo it is, that one cannot apply hot irons but with extreme and vehement paine in a ferile part, void of a Gangrene, which would be cause of a Convulsion, Fear, yea oft times of death. Moreover, it would bee a long while afterwards before the poor patients were cured, because that by the action of the fire there is made an eschar, which proceeds from the subjed flesh, which being fallen nature must regenerate a new flesh, in stead of that which hath been burned, as also the bone remains discoverd and bare; and by this means, for the most part there remaines an Ulcer incurable. Moreover there is yet another accident. It happeneth that oftentimes the crust being fallen off, the flesh not being well reerved, the blood issueth out as much as it did before. But when they shall be tyed, the ligature falls not oft until it fill the flesh have very well covered them again: which is proved by Gelen, saying, that escharotick medicines which cause a crust or eschar, whensoever they fall off, leave the part more bare than the naturall habit requires. For the generation of a crust proceeds from the parts subjed, and which are circinate round about it, being also burned, as I may say: wherefore by how much the part is burnt, by so much it looth the naturall heat. Then tell me when it is necessary to use escharotick medicines, or cautering irons? Is when the flux of blood is caused by erosion, or some Gangrene or putrefaction. Now is it thus? In ftreth bleeding wounds there is neither Gangrene nor putrefaction. Therefore, the cauteries ought not to be there applied. And when the Ancients commanded to apply hot irons to the mouths of the veffells, it hath not beene onely to stay the flux of blood, but cheefely to correct the malignant, or gangrenous putrefaction which might spoile the neighbouring parts. And it must be here noted, that if I had knowne such accidents to happen, which you have declaird in your booke, in drawing and tying the veffells, I had never beene twice deceived; nor would I ever have left by my writings to posteritie, such a way of stopping a fluxe of blood: But I writ it after I had seene it done and did it very often, with happy success. See then what may happen through your inconsiderate counsels, with-
our examining, or standing upon the facility of tying the said vessels. For, (see here's your scope and proposition, to tie the vessels after amputation is a new remedy, say you, then it must not be used, it is an ill argument for a Doctor.

But as for that (say you) one must use fire after the amputation of members, to confume, and dree the purification, which is a common thing in Gangrenes, and mortifications, that indeed hath no place here, because the practice is to amputate the parts above that which is mortified, and corrupted, as Celsius writes and commands, to make the amputation upon the found part, rather than to leave any whit of the corrupted. I would willingly ask you, if when a vein is cut transversely, and that it is very much retracted towards the original, whether you would make no confidence to burn till you had found the orifice of the vein, or artery; and if it be not more cafe only with a Crow bill to pinch and draw the vessell, and so tie it? In which you may openly shew your ignorance, and that you have your mind seised with much rancor and cholre. We daily see the ligature of the vessels practis'd, with happy success after the amputation of a part, which I will now verifie by experiences and histories of those to whom the said ligature hath been made, and persons yet living.

Experiences.

The 16. day of June 1582. in the presence of Master John Lichaud Doпочт in the faculty of Physicke at Paris, Claude Viard and others Chirurgians, Master Mathew Airmon, Chirurgion of Monseur de Bouray, and John Charbonell, master Barber Chirurgion of Paris, well understanding the Therie, and Practie of Chirurgery, did with good dexterity amputate the left legge of a woman tempered the space of three years with extreme pains, by reason of a great Cartes which was in the bone, Astrogal, Cyboides, great and little fascicles, and through all the nervous parts, through which the said extremity and intolerable pains night and day: she was called Mary of Hesel, aged 28 yeares, or thereabouts, wife of Peter Herve, Esquire of the Kitchen to the Lady Duchesse of Fence, dwelling in the streete of Veriu on the other side Saint Martin in the Fields, dwelling at the signe of the Saint lenus head where the said Charbonell cut off the said legge, the breadth of four large fingers below the Knee, and after that he had incised the flesh, and sawed the bone, he gripped the Veine with the Crow bill, then the Artery, then tied them, from whence I protest to God (which the company that were there, can witness) that in all the operation which was sudenely done, there was not spilt one porrenger of bloody and blood the said Charbonell to let it bleed more, following the precept of Hippocrates, that it is good in all wounds and also in inveterate ulcers, so the blood runne; by this meanes, the part is lesse subject to inflammation. The said Charbonell closed the dressing of her, who was cured in two moneths, without any fluxe of blood happening unto her, or other ill accidents, and the went to see you at your lodging being perfectly cured.

Another history of late memory, of a singling man of our Ladyes Church named Master Col, who broke both the bones of his legge, which were cast in divers pieces, insomuch that there was no hope of cure: to withstand a gangrenous and mortification, and by consequence death. Monsieur Helin Doctor, Regent in the faculty of Physicke, a man of honour and of good knowledge, Cloud Viard, and Simon Peter, sworn Chirurgions of Paris, men well exercised in Chirurgery, and Salhazar of Lefcre, and Leonard de Lescenal, Master Barber Chirurgions, well experimented in the operations of Chirurgery, were all of opinion to withstand the accidents aforesay'd, to make entire amputation of the whole legge, a little above the broken & thivered bones & the torne nerves, veins, arteries; the operation was nimly done, by the said Viard, and the blood ranct and by the ligature of the vessels in the presence of the said Helin, and master Tenford great Vicar of our Ladyes Church, and was continually dress'd by the said Lescenal, and I went to see him other whils he was happily cured without the application of hot irons, and walketh infantly on a woodden legge.
Another History.

The year 1583, the 10th of December, Toussaint Pons born at Ronicville, as this present dwelling at Beauvais near Dourdan, having his Legge all ulcerated, and all the bones carri’d and rotten, prayed me for the honor of God to cut off his Legge by reason of the great paine which he could no longer endure. After his body was prepared I caused his legge to be cut off, twelve fingers below the joint of the knee, by Daniel Poullet one of my servants, to reach him and to embolden him in such workes; and there he readily tied the vessells to stay the bleeding, without application of hot irons, in the presence of James Guillenrnan, ordinary Chirurgian to the King, and John Charbonel, Master Barber Chirurgion of Paris; and during the cure was visited by Master Leslie and Master Courm doctors, Regents in the facul
tie of Medicine at Paris. The said operation was made in the house of John Gobell, Inkeeper, dwelling at the signe of the white horse in the Greve. I will not here forget to say, that the Lady Princess of Montesper, knowing that he was poor, and in my hands, gave him money to pay for his chamber and diet. He was well cured, God be praised, and is returned home to his house with a wooden Leg.

Another History.

A Gangrene happened to halfe of the Legge to one named Nicholas Mesnger, aged three score and six sene years, dwelling in St. Honorat street, at the signe of the Basket, which happened to him through an inward cause, so that were contrained to cut off his Legge to save his life: and it was taken off by Anthony Remund, master Barber Chirurgion of Paris the 16th day of December 1583, in the presence of Master La Poi, and Master La Noue, sworne Chirurgions of Paris; and the blood was stayed by the Ligature of the vessells, and hee is at this present cured and in health, walking with a woorden Leg.

Another History.

A Waterman at the Port of Nesse, dwelling near Monseur de Mais Postmaster, named John Bouslereau, in whose hands a Musket brake afunder, which broke the bones of his head, and rent and tore the other parts in such sort that it was needful and necessary to make amputation of the hand two fingers above the wrist: which was done by James Guillenrnan then Chirurgion in ordinary to the King, who dwelt at that time with me. The operation likewise being readily done, and the blood stayed by the Ligature of the vessells without burning irons: hee is at this present living.

Another History.

A Merchant Grocer dwelling in St. Denis street at the signe of the great Tournel, named the Judge, who fell upon his head, where was made a wound near the temporall muscle, where he had an artery opened, from whence issued forth blood with great impetuosity, in so much that common remedies would not serve the turnes. I was called thither, where I found Master Raffe, Master Courter, Master Piarle, sworne Chirurgions of Paris, to stay the blood; where presently I took a needle and thread, and tyed the arterie, and it bled no more after that, and was quickly cured, Master Rouslelet can witnesse it, not long since Deacon of your Facul
tie, who was in the cure with us.

Another History.

A Sergeant of the Chastel dwelling near S. Andrew des Arts, who had a froake of a sword upon the throat in the Clackes medow, which cut afunder the ju
gular.
gular veine externe, as soone as he was hurt he put his handkercher upon the wound, and came to looke mee at my house, and when hee tooke away his handkercher the blood leaped out with great impetuofity: I sudainly tyed the veine toward the route, he by this meanes was flanched and cured thankes be; to God, And if one had followed your manner of flanching blood by cauteries, I leaue it to be impoased whether he had bene cured: I thinke hee had bene dead in the hands of the operator. If I would recite all those whose veffells were tyed to stay the blood which have bene cured, I should not have ended this long time; so that I thinke there are Historics enough recited to make you believe the blood of veins and arteries is surely stanch without applying any actual cauteries. 

By Bartus.

Now my little Master, seeing that you reprooch me that I have not written all the operations of Chirurgery in my works which the Ancients writ of, I should be very sorry for it: for then indeede might you justly call me Carnifex. I have left them because they are too cruell, and am willing to follow the modernes, who have moderated such crueltie; which notwithstanding you have followed step by step, as appeareth by the operations here written, extracted from your booke, which you have drawne here and there from certaine ancient Authors, such as follow, and such as you have never practised nor seene.

The first operation.

In the 7. book of the chap. of Persevysphimes,
in the first chapter, of the 1. book of my works.

To inveterate fluxions of the eyes, & Migrimes, Paulus Aginetæ as also Albuscæi command to make Arteriotomia, see here the words of the same Aginetæ. You mark the Arteries which are behind the cares, than divide them in cutting to the very bone, and make a great incision the breadth of two fingers; which is the will also of Actonus that the incision be made transverse, cutting or incising the length of two fingers, even till that the Artery be found, as you command to bee done in your booke; but I holding the opinion of Galen, who commands to drefse the diseased quickly, safely and with the least paine that is possible, I teach the young Chirurgion the meanes to remedy such evils in opening the Arteries behind the cares, and those of the Temples, with one onely incision, as a letting blood, and not to make a great incision and cut out worke for a long time.

The second operation.

In the 2. book chap. of Persevysphime.

To fluxions which are made a long time upon the eyes, Paulus Aginetæ and Albuscæi, his command to make incision which they call Persevysphimmas or Angiologe of the Greeces, and see here the words of Paul. In this operation first the head is thaved, then taking heede of touching the temporal muscles, a tranverse incision must bee made, beginning at the left Temple and finishing at the right, which you have put in your booke word for word, without changing any thing: which sheweth openly you are a right wound-maker; as may be seene in the Chapter which you call the Crownswound, which is made halfe round under the Coronall future from one temple to the another even to the bone. Now I doe not teach such a cruell kind of remedy, but instruct the operator by reason, authority and notable proofe of a sure and certaine way to remedy such affections without butcherings men in this kind.

The third.

In the cure of the Epsyroma, Paulus Aginetæ, Albuscæi and Celfii commanded to apply some 13, others 15. Cauteries to give issue to the matter contained in the breast, as the said Celfii in the aforefaid place appointeth for Athismatik people, which
which is a thing out of all reason (with respect to their honour be it spoken) that since the Chirurgions scope is to give issue to the matter therein contained, there is no other question than to make aperture, to evacuate the matter in the most inferior part. I have shewed the young Chirurgeon the means to do it lately, without tormenting the patients for nothing.

The fourth.

In Paps that are too great, 

Alveolus and Paul Eugenius will cauterize the Liver and the Spleene with hot Virons, which the moderns have never practised; for indeed reason is manifestly repugnant thereunto.

The fifth.

In the Paracentesis which is made in the third kind of Dropsie called Asciites Cell. 

Alveolus commandeth divers apertions to be made in the belly. Alveolus apthes nine actual cauteries, that is to say, four about the Navell, one upon the Stomake, one upon the Spleene, one upon the Liver, two behind the backe upon the Spondills, one of them near the breast, the last near the Stomake. Alveolus is likewise of the same opinion to open the belly with divers cauteries. Paul Eugenius commands to apply five actual cauteries to make the said Paracentesis. But abhorring such a kind of burning of which you speake much in your third booke, I doe not approve such a kind of practice, the which is done in making a simple incision in the aymbelly, as may be seen in my workes, with happy success. I doe not teach young men in my workes the manner of burning, which the Ancients have called insectare, that is not in practice though Celsus writeth of it.

The sixth.

In the Sciaticke proceeding from an internall causethx, and because the viscous humors dissease the bones, Paul commands to burne or cauterize the said jointe to the bone: Descorider commands the same, which I doe not finde expedient, taking indication from the subjacent parts: for there where one would burne, is in the place of the fore twain muscles, under which pafteth the great Nerve descending from the holy bone, which being burned, I leave it to your censure what might happen, as Galen remarketh speaking of the fission which must be made in the shouluer called buenus.

The eighth.

In the outward Laxation of the Spondills, Hippocrates commands to bind the man Sentence the right upon a Ladder, the Armes and Legges tied and bound: then afterwards having nailed the Ladder to the top of a tower, or the ridge of an house, with a great rope in a pully, then to let the patient fall plumbne downe upon the hard pavement, which Hippocrates layes was done in his time. But I doe not shew any such way of giving the trappado to men, but I shew the Chirurgeon in my workes, the way to reduce them surely, and without great paine. Moreover I should be sorry to follow the saying of the aym Hippocrates, in the third booke Demosth., who commands in the diffafe called Holunius to caufe the belly to be blowne with a paire of Bellowes, putting the nozelle of them into the intestinum rectum, and then blow there
till the belly be much stretcht, afterwards to give an emollient glass, and to drop the fundament with a sponge. Such practice as this is not made now a days, therefore wonder not if I have not spoken of it. And you not being contented to patch together the operations of the above said Authors, you have also taken divers in my works, as every man may know: which thereby manifestly that there is nothing of your own in your Chirurgions Guide. I leave out divers other unprofitable operations which you quote in your book, without knowing what beasts they are, in never having seen them practised, but because you have found them written in the books of the Ancients, you have put them into your book.

Moreover you say that you will teach me my lessons in the operations of Chirurgery, which I think you cannot do: because I have not only learned them in my study, and by the hearing for many years the lessons of Doctors of Physick: but as I have said before in my Epistle to the Reader, I was resident the space of three years in the Hospitall of Paris, where I had the means to see and learn divers works of Chirurgery, upon divers diseases, together with the Anatomy, upon a great number of dead bodies, as oftentimes I have sufficiently made trial publickly in the Physitians school at Paris, and my good luck hath made me see much more. For being called to the service of the Kings of France (four of which I have served) I have beene in company at Battells, Skirmishes, assaualts, and besieging of Citties and Fortresses, as also I have beene shut up in Citties with those that have beene besieged, having charge to dress those that were hurt. Also I have dwelt many years in this great and famous City of paris, where, thanks be to God, I have lived in very good reputation amongst all men, and have beene esteemed the chief of men of my profession, seeing there was not any cure were it never so difficult and great, where my hand and my counsel have not beene required, as I make it appeare in this my worke. Now dare you (these things being understood) say you will teach me to perform the works of Chirurgery, since you never went further than your study? The operations of the same are foure in generall (as we have declared heretofore) where you make but three, that is to say, join that which is separated, separate that which was joyned, and to takeaway that which is superfluous, and the fourth which I make, is as much necessary as industrious invention, to add to Nature that which is wanting, as I have shewed here above. Also it is your will that the Chirurgion make but the three operations above sayd without ordaining a simple Cataplase, saying it is that which comes to your part belonging to the Physition: And that the Ancients (in the discourse which you have made to the Reader) have divided the practice of Physick into three kinds, that is to say, Diet, Medicine, and Chirurgery. But I would willingly demand of you, who hath made the partition, and where any thing should be done, who are those which are content with their part, without any enterprise upon the other? For Hippocrates, Galen, Astius, Avicen, in briefe, all the Phisitians, as well Greeks and Latins as Arabians, have never so treated of the one, that they have not treated of the other, for the great aspixin and tye that there is between them two, and it should bee very difficult to doe otherwise. Now when you will vilifie Chirurgery so much, you speake against your selfe; for in your Epistle which you have dedicated to Monsieur de Martignes, you say, that Chirurgery is the most noble part of Physick, as well by reason of the original, antiquity, necessity, as certainty in her actions; for these works Luce aperta, as learnedly wrieth Celsus in the beginning of his seaventh booke, therefore it is to be beleived you never went out of your study, but to teach the Theorick (if you have bee able to doe it.)

The operations of Chirurgery are learnt by the eye, & by the touch. I will say that you much resemble a young Lad of Low Brittany, of plump buttocks, where was fitte sufficient; who demanded leave of his father to come to Paris, to take French, being arrived the Organist of our Lady's Church, met with him at the Palace gate, who took him to blow the Organs, where he was remaining three yeares; hee saw hee could somewhat speake French, he returns to his father, and told him that he spake good French, and moreover he knew well, to play on the Organs: his father received him very
very joyfully, for that hee was so wise and learned into short a time. Hee
to the Organist of their great Church, and prayed him to permit his sonne to
play on the Organs, to the end he might know whether his sonne was become fo
skilfull a matter, as hee sayd he was; which the Organist agreed to very willingly.
Being encreed to the Organist, he calleth himselfe with a full leape to the bellowe, the
matter Organist bid him play, and that he would blow; then this good matter ans-
swers, Let him play himselfe on the Organs; if he would for him, hee could doe
nothing but play on the bellowe. I thinke also my little matter, that you know no-
thing else, but to prattle in a chairre, but I will play upon the keyes, and make the Or-
gans found (that is to say) I will doe the operations of Chirurgery, that which you
cannot in any wise doe, because you have not gone from your study or the schools,
as I have sayd before. But also, as I have sayd already in the Epistle to the Reader,
that the labourer doth little profit by talking of the faisons, disquiet of the manner
of tillmg the earth, to shew what seedes are proper to each foyle, all which is no-
thing if he put not his hand to the Plough, and couple the Oxen together. So like-
wise is it no great matter if you doe not know the Practick, for a man may execute
Chirurgery well, although he have no tongue at all. As Cornelius Celsus hath very
well remarke in his first booke when he faith, Markos non eloquentia, sed remeas ca-
rar. que si quis singulas, atque diversas humanae., hanc eloquente majorem medium fu-
trum, quod si sine longa sonum excolerei, that is to say, Difeases are not to bee
cured by eloquence, but by remedies well and duly applied, which if any wise and
difcreete man though he have no tongue know well the use thereof, his man in time
shall become the greater Physitian, than if without prattle his tongue were dippd
with oratory, the which you your selfe confesse in your sayd booke by a Tetraflike
which is thus:

To take is not all in Chirurgious Art,

But working with the bands,
Aply to dress each greased part,
And guide, fire, knife, and bands,

Aristotile in the first booke of his Metaphyficks the first chapter faith, Experience
is almost like unto science, and by the same, Art and science have beene inveneted.
And indeed we fee thofe which are experimented, attaine sooner to that which
they intend, than thofe which have reafon and not experience, because that the sayd
experience is a knowledge of singular and particular things, and science on the con-
trary is a knowledge of things univerfall. Now thofe which particular is more
healable than that which is univerfall, therefore thofe which have experience are
more wise and more esteemed, than thofe which want it, by reafon they know what
they doe. Moreover I faie, that science without experience, bringeth no great allu-
rance.

Alicia a Doctor of Milan, boastted one day of himselfe, that his glory was greater
and more famous than that of Counfellores, Presidentes, masters of Requeft, because that
it was by his science, and his instructions that they became fuch; but he was allu-
ved by a Counfello, that he was like unto a whetstone, which made the knife sharper
and ready to cut, not being able to doe itselfe, and alledged the verfes of Horace
that:

Eurus atque venter, ac武术
Reddere quae ferum vuln., eurus ipse fecund.

See you now (my little matter) my answers to your calumniations, and pray you,
if you beare a good minde (to the publicke good) to review and correct your booke,
as soone as you can, and not to hold young Chirurgeon in this errour by the rea-
ding of the fame, where you teach them to use hot irones after the amputation of
members, to stay a fluxe of blood, seeing there is another means, and not so cruel
and more sure and cattif. Moreover it to day after an assaile of a City, where dis

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verse Souldiers have had armes and legges broken, and shot off by Cannon Bullets, Cutlass or other instruments of warre; to stay the fluxue of blood, if you should use hot irons, it would be needfull to have a forge, and much coales to heat them; and also the souldiers would hold you in such horror for this cruelty, that they would kill you like a Calfe, even as in times past they did to one of the chiefeft Chirurgions of Rome, which may be found written before in the third chapter of the Introduction of Chirurgery, the 1 booke. Now left the Senators of your writings should fall into such inconveniencie, I pray them to follow the methode aforesayd, the which I have shewed to be true and certaine, and approved by authority, reason and experience.

The Voyage of Thurin, 1536.

Moreover, I will heere shew to the readers the places where I have had means to learne the Art of Chirurgie, for the better instructing of the young Chirurgion; and first in the yeere 1536, the great King Francis sent a great Army to Thurin, to recover the Cityes and Caftles, which the Marquesse of Guast, Lieuvenant generall of the Emperor had taken: where the high Constable of France the great master, was Lieuvenant generall of the Army, and Monfieur de Montian Colocol generall of the toote, of which I was then Chirurgion. A great part of the Army arrived in the Country of Saue, we found the enemy which flopt the passage, and had made certaine Forts, and trenches, infromuch that to hunt them out and make them leave the place, we were forced to fight, where there were divers hurt and stance, as well of the one side as of the other: but the enemies were confrayned to retire, and get into the Caflle, which was caused partly by one Captain Rats, who clined with divers of the fouldiers of his company upon a little Mountain; there where he flot directly upon the enemies, hee received a shot upon the ankle of his right foote, wherewith presently he fell to the ground; and sayd then, Now is the Rat taken. I dreffed him, and God healed him. We entered the throng in the City, and paflTed over the dead bodyes, and some which were not yet dead, we heard them cry under our horses feete, which made my heart relent to heare them. And truely I repented to have forsaken Parts to see fo pittifull a spectacle. Being in the City, I entred into a flable thinking to lodge my owne, and my mans horfe, where I found foure dead loudlifters, and three which were leaning against the wall, their faces wholly disfigured, and neither saw nor heard, nor spokke; and their cloathes did yet flame with the gunpowder which had burnt them. Beholding them with pity, there happened to come an old souldier, who aske me if there were any possible means to cure them, I told him no: he perfucly approached to them, and gently cut their throates without choler. Seeing this great cruelty, I told him he was a wicked man; he anwered me that he prayed to God, that whencesoever he should be in such a cafe, that he might finde some one that would doe as much to him, to the end he might not miserably languifh. And to returne to our former discoure, the enemie was fomoned to render, which they sooner did, & went out, their lives onely saved, with a white flaffe in their hands the greatest part whereof went and got to the Caflle of Viliane, where there was about 200. Spaniards, Monfieur the Constable would not leave them behind, to the end that the way might be made free. This Caflle is feated upon a little mountain, which gave great assurance to them within, that one could not plant the Ordinance to beate upon it, and were fomoned to render, or that they should be cut in pieces; which they flatly refufed, making anfwer that they were as good and faithfull servants to the Emperor, as Monfieur the Constable could bee to the King his master. Their anfwer heard, they made by force of armes, two great Cannons to be mounted in the night with cords and ropes, by the Swiflers and Landquenets; when as the ill lucke would have it, the two Cannons being feated, a Gunner by great negligence set on fire a great bagge of Gunpowder, wherewith he was burned together with ten or twelve souldiers; and moreover the flame of the powder was a caufe of discovering the Artillery, which made them that all night, they of the Caflle did nothing but flout.
concerning diverse Voyages.

The next day early in the morning a Battery was made, which in a few hours made a breach, which being made they demanded to parly with us; but we were too late for them. For in the meantime our French soldiers, seeing them amazed, mounted to the breach, and cut them all in pieces, except a fine young lady named of Piédmont, which a great Lord would have kept and preserved for him to keep him company in the night, for fear of the greedy wolves. The Captain and Eadigne were taken alive, but soon after were hanged upon the gate of the City, to the end they might give example and fear to the Imperiall soldiers not to bee too rash and foolifh, to be willing to hold such places againft so great a Army. Now all the said soldiers of the Castle, seeing our people comming with a most violent fury, did all their endeavours to defend themselves, they killed and hurt a great company of our soldiers, with Pikes, Muskets, and Stones, where the Chirurgions had good store of worke cut out. Now at that time I was a fresh water Soldier, I had not yet receiv'd wounds made by gun-shot at the first dressing. It is true, I had read in John de Vige, in the first booke of wounds in general, the eighth chapter, that wounds made by weapons of fire did participate of Venenosity, by reason of the powder, and for their cure commands to cauterize them with oyle of Elders felding hot, in which should be mingled a little Treackle, and not to faile, before I would apply of the said oyle, knowing that such a thing might bring to the Patient great paine, I was willing to know first, before I applied it, how the other Chirurgions did for the first dressing, which was to apply the said oyle the hottest that was possible into the wounds, with cens and seines; infomuch that I took courage to doe as they did. At last I wanted oyle, and was constrained in need thereof, to apply a disgeffive of yolkes of eggs, oyle of Roses, and Turpentine. In the night I could not sleepe in quiet, fearing some default in not cauterizing, that I should finde thofe to whom I had not used the burning oyle dead imploy'd, which made me rise very early to visit them, where beyond my expectation I found thofe to whom I had applied my digestive medicine, to feel little paine, and their wounds without inflammation or tumor, having refited reasonable well in the night: the other to whom was used the said burning oyle, I found them feverish, with great paine and tumour about the edges of their wounds. And then I resolved with my felle never so cruelly, to buorac poore men wounded with gun-shot. Being at Thurn I found a Chirurgion, who had the fame above all others, for the curing of wounds of Gun-shot, into whose favour I found means to infinuate my felle, to have the receipt of his balne, as he called it, wherewith he dressed wounds of that kind, and he held me off the space of two yeares, before I could possibly draw the receipt from him. In the end by gifts and presents he gave it me, which was this, to Boyle young whelpes new pupped, in oyle of Lilies, prepared earth wormes, with Turpentine of Venice. Then was I joyful and my heart made glad, that I had understood his remedy, which was like to that which I had obtained by great chance. See then how I have learned to dress wounds made with gun-shot, not by booke. My Lord Marshall of Montfion remaied Lieutenant general for the King in Piémont, having ten or twelve thousand men in garrison through the Citres and Castles, who often combatted with swords and other weapons, as alfo with muskets and if there were foure harr, I had alwaies three of them, and if there were question of cutting off an arm or a legge, or to trepan, or to reduce a fracture or dilocation, I brought it well to passe. The said Lord Marshall sent me one while this way another while that way, for to dress the appoynted Soldiers which were beaten aswell in other Citres as that of Thurn, inomuch that I was alwaies in the Countrie one way or other. Montfion the Marshall sent for a Phyfitioner to Milan, who had no leffe reputation in the medicinall Art than the deceased Montfion de Grandy to take him in hand for an hepatica flux, whereof at last he dyed. This Phyfitioner was a certaine while at Thurn in to deal with him, and was often called to visit the hurt people, where he alwaies found me, and I consulated with him, and some other Chirurgions, and when wee had resolvd to doe any serious worke of Chirurgery, was Ambrose Parch that put his hand thereto.
where I did it promptly and with dexterity, and with a great assurance, in so much that the said Physicion admired me, to see me foready in the operation of Chirurgery, seeing the small age which I had. One day dis couraging with the said Lord Marshall, he said to him, Signor, tu hai un chirurgo giovane di anni, ma egli è vecchio di fare e di esperienza. Guarda bene, perché egli ti farà servizio & onore. That is to say, Thou hast a young Chirurgeon of age, but he is old in knowledge and experience, preserve him well, for he will do thee service, and honour. But the old man knew not that I had dwelt three years in the Hospital of Paris, there to diffuse the di feased. In the end Monfieur Marshall dyed with his hepaticall fluxe. Being dead, the King sent Monfieur the Marshall of Annewant to be in his place, who did me this honour to pray me to dwell with him, and that he would use me as well or better, than Monfieur the Marshall Mountains; which I would not doe for the greefe I had for the losse of my master who loved me intimately, and I him in the like manner; and so I came backe to Paris.

The Voyage of Marolle and of Low Britany, 1543.

I Went to the Camp of Marolle, with the deceased Monfieur de Rohan, where King Francis was in person, and I was Chirurgeon of the company of the said Monfieur de Rohan. Now the King was advertised by Monfieur de Estampes, governour of Britany, that the English had hoisted their Sails to land in Low Britany, and prayed him that he would send Monfieur de Rohan, and Monfieur de Laval for succour, because they were the Lords of that Country, and for their sakes those of that Country would beate backe the enemy and keepe them from landing. Having received this advertisement, his Majesty dispatched to send the sain Lords for the releafe of their Country, and to each was given as much power as to the Governours; in so much that they were all three the Kings Lievetenants. They took willingly this charge upon them, and speedily went away in Post, and lead me with them to Landerne, where we found every one in arraes, the Alarum bells sounding on every side, yea five or fixe leagues about the Harbors, that is to say, Brest, Conques, Cremou, Le Pen Douas, Loundans, each of them well furnish'd with Artillery, as Cannons, Demy-cannons, Culverins, Sakers, Serpentine, Falcons, Harque buses, in breve there was nothing wanting in Artillery, or souldiers awell Britanes as Frenches, to hinder that the English made no landing, as they had resolv'd at their parting from England. The enemies Army came unto the very mouth of the Cannon, and when we perceived them that they would land, they were fainted with Cannon shot, and we discovered our men of warre, together with our Artillery, they fled to Sea againe, where I was glad to see their vessels hoffe falle againe, which was in a great number and in good order, and seem'd like a Fleet which march'd upon the Sea. I saw a thing alfo whereat I marvelled much, which was that the bullets of great peeces made great rebounds, and grazed upon the water as upon the ground. Now to make the matter fhort, the English did us no harme, and returned whole and found into England, and left us in peace. We flaid in that Country in garrilion, till we were affured that their army was dispers'd. In the meanwhile our boydemen exercis'd their feates of activity, as to run at the ring, fight in duell, and other things, so that there was still something to employ me withall. Monfieur de Estampes, to make sport and pleafure to the said Monfieur de Rohan, and Laval, and other gentlemen, caus'd divers Countrey wenches, to come to the feafts, to sing longs in the Low Brittan tongue, where their harmony was like the croaking of Frogs, while they are in love. Moreover made them dance the Brittan Triery, without movitng ftrete or buttocks, he made them hearre and see much good. Otherswhiles they叫我d the Wrathfulls of the Cities, and Townes, to come where there was a Prize for the beft, and the sport was feldome ended, but that one or other had a legge or an arm broken, or the shoulder or hippe displaced; there was a little man of Low Britany of a square body and well let, who held a long time the credit of the field, and by his skill, and strength, threw five or fixe to the ground, there came to him a great.
great schoolmater, who was sayd to be one of the best wraflers of all Britayn: he entered into the lists, having taken off his long jacket, in hose and doublet, and being neere the little man, he seemed as if he had beene eyed to his girdle. Notwithstanding when each of them tooke hold of the collar, they were a long time without doing any thing, and they thought they would remaine equal in force and skill; but the little man cast himselfe with an ambling leap under this great Pedant, and took him on his shoulder, and cast him on his Kidneyes spread abroad like a frogge, and then all the company laught at the skill and strength of this little fellow. This great Dazeron had a great figh, for being cast by so little a man: he rote againe in cho ler, and would have his revenge. They tooke hold againe of each others collar, and were againe while at their hold without falling to ground: in the end this great man let himselfe fall upon the little, and in falling put his elbow upon the pitch of his stomacke, and burst his heart, and kild him stark dead. And knowing he had given him his deathes blow, tooke againe his long jacket, and went away with his样式 between his legs and hid himselfe, seeing that the little man came not againe to himselfe, either for Wine, Vinegar or any other thing that was presented unto him; I drew near to him, and felt his pulse which did not beat at all, then I sayd he was dead, then the Britanes who affiled the wrafling sayd aloud in their jabbering, that is not in the sport. And some sayd that the sayd Pedagoge was accustomed to doe so, and that but for a peculiar fellow he had done the like in a wrafling. I would needs open the body to know the cause of this sudden death, where I found much blood in the Thorax and in the inferiour belly, and I strived to finde out any spersion in the place, from whence might follow so great a quantity of blood, which I could not doe for all the diligence I could make. Now I believe it was per Divina dispensation, that is to say, the spersion of the muscles of the vesseles, or by their porosities, the poore little wrafler was buried. I took leave of Monsieur de Rohan, de Laval, and Eftamps, Monfieur de Rohan, gave mee a present of fifty double ducketes, and an ambling horfe, and Monfieur de Laval another for my man, and Monfieur de Eftamps, a Diamond of thirty Crownes, and so I returned to my house at Paris.

The Voyages of Parpignan, 1543

A Little while after Monsieur de Rohan tooke me with him potte, to the campe of Parpignan; being there, the enemy made a Sally forth, and came and inglced three pieces of our Artillery, where they were beaten back to the gates of the City; which was not done without hurting and killing many, and amongst the rest de Bresfayre, (who was then chief master of the Artillery), received a musket shot upon the shoulder returning to his Tent, all the others that were hurt followed him, hoping to be drest by the Chirurgions, that ought to dresse them. Being come to his Tent and layd on his bed, the bullet was searched for by three or foure of the most expert Chirurgions of the Army, who could not finde it, but sayd it was entred into his body.

In the end hee called for me, to see if I were more skilfull then them, because he had knowne me before in Piedmont: by and by I made him rise from his bed, and prayed him to put his body into that posture as it was then when he receivd his hurt, which he did taking a javelin betweene his hands as he held the Pike in the skirmish. I put my hand about the wound, and found the bullet in the flesh, making a little tumor under the Omoplate: having found it I thowed them the place where it was, and it was taken out by Master Nicholas Lavenant Chirurgion to Monsieur the Dolphin, who was the Kings Lieuenant in that army, yet notwithstanding, the Honour remained to me for finding of it.

I saw one thing of great remark, which is this: that a smoothier in my presence gave to one of his followers a shrooke within Hallbard upon the head, penetr voltage even to the left ventricle of the braine, without falling to the ground. Hee that

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strooke him said, he had heard that he had cheated at Dice, and that he had drawn a great summe of money, and that it was his custom to cheat; I was called to dress him, which I did as it were for the last, knowing well that he would quickly die: having dress'd him he returned all alone to his lodging, which was at least two hundred paces distant; I bid one of his companions send for a Priest to dispose of the affairs of his soul, he help'd him to one who staid with him to the last gaspe. The next day the patient sent for me by his friend in a boyes apparell to come to dress him, which I would not doe, fearing he should die under my hands; and to put it off, I sayd I must not take off the dressing till the third day, by reason he would die though he were never touched. The third day he came staggering, and found me in my Tent accompanied with his wench, and prayed mee most affectionately to dress him: And thwed me a purse wherein he had an hundred or sixscore pieces of Gold, and that he would content me to ray desire, for all that, yet notwithstanding I left not off to deferre the taking off his dressing, fearing least he should die at the same instant. Certaine Gentlemen defired me to goe dress him, which I did at their request, but in dressing him he died under my hands in a Convulsion. Now this Priest accompanied him untill death, who seized upon the puxe for case another should take it, saying, hee would say Masters for his soul. Moreover he furnished himselfe with his clothes, and with all the rest of his things. I have recited this History as a monstrous thing, that the Souldier fell not to ground when he had received this great stroke, and was in good senses even till death. Soon after, the Camp was broken for divers causes; the one because we were advertised that foure companies of Spaniards were entered into Parij, the other, that the Plague begun much in our Camp, and it was told us by the people of the country that shortly there would bee a great overfloeing of the Sea, which might drowne us all; and the preface which they had, was a very great winde from Sea, which rolde in such manner that there remained not one Tent which was not broken and overthrown, for all the strength and diligence that could be given; and the Ketchins being all uncovered, the winde raised to the dust and sand which salted and poudered our meat, in such sort that wee could not eate it, so that wee were constrained to boile it in pots and other vessels well cover'd.

Now we did not uncampe our selves in so good time, but that there were many Carts and Carreters Mules, and Mule drivers drowned in the Sea, with great loss of baggage. The Camp broken, I returned to Paris.

The Voyage to Landres f. 1544.

King Francis raifed a great Army to victuall Landres: on the other side the Emperer had no leefe people, yea much more; that is to sy, eighteene thousand Germans, tenne thousand Spaniards, five thousand Walloons, tenne thousand English, and a matter of thirtene or foureteene thousand Horse. Hau the two Armies nearest another, within Canon shot, and it was thought they would never part without giving bataille. There were some certain foolish Gentlemen who would approach the enemies Campe, certaine shot was made at them, and some dyed at the place, others had their Legges or Armes carried away. The King having done what hee deuired, which was to victuall Landres, retir'd himselfe with his Army to Gais, which was the day after All Saints, one thousand five hundred forty foure, and from thence I returned to Paris.

The Voyage of Bouliane. 1545.

A little while after we went to Bouliane, where the English seeing our Army, left the Forts which they had, that is to say, Maulanhote, the little Paradise, Manslaifer, the fort of Statallon, the Postes, the Fort Vardelo. One day going through the Camp to dress my hurt people, the enemies who were in the Tower of ore, shot off a piece of Ordinance, thinking to kill two horsemen which flayed to tale.
I Went the voyage to Germany in the year 1552, with Monfieur De Rohan Captain of 50 horse, where I was Chirurgion of his company, which I have said already. In this voyage Monfieur the high Constable of France was General of the Army; Monfieur de Castillon, since Admiral, was chief Colonel of the foole, having foure Regiments of Lanquenets, under the conduct of these Captaines, Royed and Kingswood, having each of them two Regiments, each Regiment was of tenne Ensignes, and each Ensign of five hundred men. And besides thefe, was Captain Chartel, who conducted the troopes that the Protestant Princes had sent to the King. This was a very faire company on foole, accompanied with fiftene hundred Horfe, with the following of each one two Archers, which might make foure thousand five hundred Horfe, besides two thousand Light horfe, and as many Muskettiers on horfcbacke, of whom Monfieur de Aumale was General, besides the great number of Nobility who came for their pleafure. Moreover, the King was accompanied with two hundred Gentlemen of his house, & likewise with divers Princes, there was also for his troope that served him, the French, Scotife, and Swiffe Guards, amounting to figne hundred men on foole, and the companies of Monfieur the Dolphin, Mechters de Guife, de Aumalz, and of the Marhstl S. Andrew, which amounted to foure hundred Lances, which was a mervelous thing to fee such a faire Company; and in this equipage the King entred into Thon and Metz. I will not omit to tell that it was ordained, that the Companions of Mechters de Rohan, of the Count of Sancery, of Tarnos, which was each of them of fifty horfe, went by the Wings of the Campe; and God knows we had learnce of vivthals, and I profef to God that at three divers times I had thought I should have been famifh; and it was not for want of money for we had enough, and we could not have vivthals but by force, by reason that the Pefants withdrew it all into the Citties and Caffes.

One of the fervants of a Captain of the company of Monfieur de Rohan, went with others thinking to enter into a Church where the Pefants were retir'd, thinking to finde vivthals by force or love; but amongst the reft this man was well beaten, and returned with feaven wounds, with a fword in the head; the leat of which penetrating the second table of the skull, and he had foure other upon the armes, and upon the right shoulder, which cut more than one halfe of the blade bone, or Membrane.
He was brought backe to his masters lodging, who seeing of him so wounded, and that they were to depart thence the morn after at the break of day, and not thinking ever he could be cured, made him a grave, and would have cast him there in, saying that, or else the Peasants would massacre and kill him; I mov’d with pity told him that he might yet be cured if he were well dress’d: divers Gentlemen of the company praysd him that he would cause him to be brought along with the Baggage, seeing I had the willingnesse to dress’ him, to which he agreed, and after that I had cloth’d him, he was but put into a Cart upon a bed well covered and well accommodated, which one horse did draw. I did the office of a Physitian, Apothecary, Chirurgion, and Cooke; I dress’d him even to the end of his cure, and God cured him, in so much that all thefe three Companies admired at this cure. The horfemen of the company of Monfieur de Rohan, the first mutter that was made, gave me each one, one Crowne, and the Archers halfe a Crowne.

The voyage of Daunilliers, 1552.

At the returne from the German Camp, King Henry besieged Daunilliers, those within would not render. They were well beaten and our pouder failed us, in the meane time they shot much at our people. There was a Culverin that pass’d a travers into the Tent of Monfieur de Rohan, which hit a Gentlemans Leg, which was of his taint, which I was faine to finish the cutting off, the which was done without applying hot irons.

The King sent for pouder to which being come they began a greater batterie than before, in luch fort that they made a breach. Messieurs de Guife, and the high Contable being in the Kings Chamber, told him they concluded the next day to make an assault; & that they were assured they should enter into it, & that they should keep it secret lest the enemy were advertized. And all of them promis’d not to speake of it to any one. Now there was a Groom of the Kings chamber who lay under the Kings bed in the Camp to sleepe, understand that they resolved the next day to give an assault, he presently revealed it to a certaine Captaine and told him that for certaine the day following assault should be given, & that he had heard it of the King, & praid the said Captaine that he would not speake a word of it to any body, which he promised, but his promise was not kept, for at the fame instant he went and declared it to a Captaine, & this Captaine to another Captaine, and from the Captaines to some of the Soldiers, saying always, say nothing. It was so well hid that the next day early in the morning there was seen the greatest part of the Soldiers with their round houfe and their breeches cut at knee for the better mounting at the breach. The King was advertiz’d of the rumor which runne through the Camp, that the assault must be given, whereof he was much meruell’d, seeing there was but three of that advise, which bad promised one to another, not to tell it to any one. The King sent for Monfieur de Guise, to know if he had not talked of this assault; he swore and affirmed to him he had not told it to any body; and Monfieur the Contable faid as much; who faid to the King he must expressly know who had declared this secret counsel, seeing they were but three. Inquisition was made from Captaine to Captaine, in the end the truth was found, for one sayd twas such a one told me, another sayd as much, till at length they came to the first, who declared he had heard it of a Groome of the Kings chamber, named Gayard, borne at Blois, the fonne of the deceatd King Francis his Barber. The King sent for him into his Tent, in the presence of Monfieur de Guise, and of Monfieur the Contable, to understand from him whence he had it, and who told him that this assault was to bee given. The King told him that if he did not tell the truth, that he would cause him to be hanged; then he declared, he lay downe under his bed thinking to sleepe, and to having heard it, he declared it to a Captaine who was a friend of his, to the end hee might prepare himselfe with his Soldiers the first for the assault. After the King knew the truth, he told him, he should never serve him againe, and that he desired to be hanged, and forbid him ever to come againe to the Court. My Groome of the Chamber went away with this sad newes, and lay with one of the Kings Chirurgions.
Chirurgions in ordinary, named Master Lewis, and in the night gave himselfe six wounds with a knife, and cut his throat, yet the said Chirurgion perceived nothing till morning, till hee saw the bed bloody, and the dead body by him: hee much marvelled at this spectacle upon his waking, and was afraid lest they should sry he was the cause of this murther; but was sooner freed, knowing the cause to bee from desperation, having lost the good amitie which the King bore to him. The said Guyard was buried. And thofe of Dauners when they saw the breach large enoufh for them to enter in, and the Souldiers prepared for the assault, yielded themselves to the mercy of the King. The chiefe of them were prifoners, and the Souldiers flent away without ammuns. The Campe being broken up I returned to Paris with my Gentleman whose Leg I had cut off, dreft him and God cured him, I sent him to his house merry with a woodden Leg, and was content laying that he leaped good chance not to have beene miserably burnt, as you write in your booke, my little Matter.

The Voyage of Castile the Compt, 1553.

A Little while after King Henry levied an Army of thirty thousand men, to goe make spoile about Hedin. The King of Navarre who was then called Monsieur de Vendome, was chiefe of the Army, and the Kings Lievtenant. Being at S. Denis in France, staying while the companies passed by, heient for me to Paris to come speak with him, being there, he prayed me, and his request was a command, that I would follow him this voyage; and I about to make my excuse told him my wife was sick in her bed, he made me answer, that there were Phillifons at Paris for to cure her, and that he as well left his own, who was as well defended as mine, promising me that he would use me well, and forthwith gave command that I should be lodg'd as one of his Traine. Seeing this great affection which he had to leade me with him, I durft not to refuse him. I went and met with him at the Castle of Compt, within 3. or 4. leagues, where there was the Emperors Soulliers in garrillon with a number of Peasants round about: he caused them to be immoned to render themselves, and they made answer they should never have them but by pieces, and let them doe their worst, and they would doe their beft to defend themselves. They put confidence in their ditches full of water, and in two hours with a great number of Bawins, and certaine empty Caskes, way was made to passe over the foote: when they must goe to the assault and were beaten with five pieces of Cannon, till a breach was made large enoufh to enter in, where they within received the assault very valiantly, and not without killing and hurting a great number of our people with much shot, pikes and stones. In the end when they saw themselves constrained, they put fire to their powder and munition, which was the cause of burning many of our people, and of theirs likewise, and they were all almost put to the edge of the sword. Notwithstanding some of our Soulliers had taken twentieth or thirtie, hoping to have ransome for them. That was knowne, and ordered by the Conflent that it should be proclaimed by the Trumpet through the Campe, that all Soulliers who had any Spains or prisoners were to kil them, upon paine to be hanged and strangled, which was done upon cold blood. From thence we went and burnt divers Villages, whose barnes were full of all kind of graine, to my great greate. Wee went along even to Tournaham, where there was a very great Tower where the Enemies retired, but there was no man found in it, all was pillaged, and the Tower was made to leape by a Mine, and then with Gunpounder, turned topsy curvy. After that, the Campe was broken up, and I returned to Paris. I will not yet forget to write that the day after the Castle of Compt was taken, Monsieur de Vendome sent a Gentleman to the King to make report to him of all which had passe'd, and amongst other things, told the King that I had greatly done my duty in dreffing those that were wounded, and that I had help'd him eighteene Bulletts which I had taken or drwan out of the hurt bodics, and that there were divers more which I could neither finde, nor draw out, and told more good of mee than there was by halfe. Then the King laide hee would have mee into his servise.
and commanded Monfieur de Gognier his chief Physician to write me downe as entertained one of his Chirurgions in ordinary, and that I should goe meete with him at Rheims within ten or twelve dayes; which I did, where he did me the honour to command me that I would dwell neare him, and that he would doe me good. Then I thanked him most humbly for the honour it pleased him to doe me, in calling me to his service.

The Voyage of Metz. 1552.

The Emperor having befeiged Metz, and in the hardest time of winter, as each one knowes of fresh memory: and that there was in the City live or fixe thousand men, and amongst the rest seven Princes, that is to say, Monfieur the Duke of Guise, the Kinges Lieutenant, Messieurs d'Angoys, de Conde, de Montpensier, de la Roch upon Ton, Monfieur de Nemours, and divers other Gentlemen, with a number of old Captaines of warre, who often made fallies forth upon the enemies, (as wee shall speake of hereafter) which was not done without slaying many, as well on the one side as the other. For the moft part all our wounded people dyed, and it was thought the medicaments wherewith they were dressed were poysioned; which cau-

feded Monfieur de Guise and other Princes to send to the King for mee, and that he would send mee with Drogues to them, for they beeleeved theirs were poysoned, seeing that of their hurt people few escaped. I doe not believe there was any poys-

fon, but the great strokes of the Cutaffes, Musket shot, and the extremity of cold were the caufe. The King caused one to write to Monfieur the Marshall of S. Andrew which was his Lieutenant at Perdun, that hee found some meanes to make mee enter into Metts. The said Lord Marshall of S. Andrew and Monfieur the Mar-

shall of old Pille, got an Italian Captaine, who promised them to make mee enter in, which he did, and for which hee had fifteen hundred Crownes; the King having heard of the promis which the Italian Captaine had made, sent for mee and com-

manded mee to take of his Apothecary named such, and as many Drogues as I shoulde thinke fit for the hurt who were besieged, which I did, as much as a pothorie could carry. The King gave me charge to speake to Monfieur de Guise and to the Princes, and Captaines who were at Metz. Being arrived at Perdun, a few days after Monfieur the Marshall of S. Andrew, caused horses to be given to mee, and my man and for the Italian, who speake very good high Dutch, Spanish and Walon with his owne natural tongue. When we were within eight or tenne Leagues of Metz, wee went not but in the night, and being neare the Campe, I saw a league and a halfe off bright fires round about the City, which seemed as if all the earth were on fire, and I thought wee could never passe through those fires without being discovered, and by consequent be hanged and stranglde, or cut in peeces, or pay a great ranfome. To speake truth, I wished my selfe at Paris, for the eminent danger which I foresaw. God guided so well our affairs that wee entred into the City at midnight with a certaine Token, which the Captaine had with another Captaine of the company of Monfieur de Guise; which Lord I went to, and found him in bed, who receaved me with great thanks, being joyful of my comming. I did my message to him of all that the King had commanded mee to say to him; I told him I had a little letter to give him, and that the next day I would not faile to deliver it him. That done be commanded mee a good lodging, and that I shoule be well used, and bid mee I shoule not faile to be the next day up on the Breach, where I shoule meete with all the Princes, and divers Captaines, which I did, and received mee with great joy, who did mee the honour to embrace mee, and tell mee I was very welcome, adding withall they did not feare to dye if they shoule chance to be hurt; Monfieur de La Roch upon Ton was the first that receaved mee, and inquired of mee what they sayd at the Court concerning the City of Metz; I told him what I thought good. Then presently he desir'd mee to goe fee one of his Gentlemen, named Monfieur de Magnane at this present Knight of the Kings order, and Lieutenant of his Majesties Guard, who had his Leg broken by a Cannon shot. I found him in his bed, his Leg bended and crooked, without any dressing.
dressing upon it; because a Gentleman promised him cure, having his name, and his
girdle, with certaine words. The poore Gentleman wept, and cried with paine which
he felt, not sleeping either night or day, in four days: then I mocked at this
imposture and false promise. Presently I did so nimblly restore and dresse his Legge,
that he was without paine and slept all night, and since (thanks be to God) was cured,
and is yet at this present living, doing service to the King. The said Lord of the
Roch upon Ton lent me a Tunne of wine to my lodging, and bid me tell, when it was dron-
kken he would send me another. That done, Monsieur de Guise gave me a lift of
certaine Captaines and Lords, and commanded me to tell them what the King had
given me in charge, which I did, which was to doe his commendations and a thankgiv-
ning for the duty they had done, and did in the keeping of the City of Aves.
that he would acknowledge it. I was more than eight daies in acquainting my
charge, because they were many; first to the Princes and others, as the Duke of
Hercule, the Count of Marsigues, and his brother, Monsieur de Bauge, the Lords
Monterrance, and d'Arville, then Marshell of France, Monsieur de la Chapell, domi-
net Carong now Governour of Rohan, the Vidame of Chartres, the Count of
Ludue, Monsieur de Biron now Marshell of France, Monsieur de Randan, the Rob-
fauento, Boudaille d'Este, the younger, Monsieur de St. John in Dolphiny, and many others
which it would be too long to recite, and chiefly to divers Captaines who had
very well done their duty in defence of their lives, and City, I demanded after-
wards of Monsieur de Guise, what it pleased he should doe with the Drugs which I
had brought, he bid me impart them to the Chirurgions and Apothecaries, and
chiefly to the poore hurt Souldiers in the Hospital which were in great number;
which I did, and can assure you, I could not doe so much as go see them, but they
fent for me to visit and dresse them. All the besieged Lords prayed mee carefully
to follicit above all others Monsieur de Pienne who was hurt at the breach by a
flone raised by a Cannon shot in the Temple with a fracture, and depression of the
bone. They told mee that presently when hee received the stroke, hee fell to the
earth as dead, and cast blood out of his mouth, nose, and ears with great vomitings,
and was fourteen days without speaking one word, or having any reason, there
happened to him also fittings somewhat like Convulsions, and had all his face
swell'd and livid. Hee was teen'd on the side of the temporal muscle upon the
Os Coronale, I drest him with other Chirurgions, and God cured him, and is at this
day living, God be thanked. The Emperor caus'd battery to be made with for-
dy double Cannons, where they spared no ponder night nor day. Presently when
Monsieur de Guise saw the Artillery leant to make a breach, he made the nearest
houses to be pulled downe to make Ramparts, and the pofts and beams were ran-
ger, end to end, and between two clouds of earth, beds and packs of wooll, and then
other pofts and beams were put againe upon them as before. Now much wood
of the houses of the suburbs which had beene put to the ground (for feare least the
enemie should be lodg'd close covered, and that they should not helpethemselves
with any wood) served well to repair the breach. Every one was bufied to carry
earth to make the Ramparts night and day, Meffieres the Princes, Lords and Cap-
taines, Lieutenants, Ensignes, did all carry the basket, to give example to the Soul-
diers, and Citizens to doe the like, which they did by a both Ladies and Gentlewo-
men, and those which had not baskets, help themselves with kettles, panniers, fackes,
sheets, and with what else they could to carry earth; in so much that the enemy had
no sooner beaten downe the wall, but hee found behind a Rampart more strong.
The wall being fallen our Souldiers cryed to those without, the Fox, the Fox, the
Fox, and spake a thousand and injuries one to another. Monsieur de Guise commanded
upon paine of death that no man should speake to them without, for feare least there
should be some Traitor who would give them intelligence what was done in the
City; the command made, they lived living Cats at the end of their Pikes, and
put them upon the Wall and cried with the Cats miau, miau.

Truely the Emperorists were very much vexed to have beene so long making a
breach, and at so great expense, which was the breach of four score steps, to enter
fifty men in front, where they found a Rampart more strong than the wall; they
fell.
fell upon the poor cats, and shot at them with their muskets as they use to do at birds. Our people did oftentimes make sallies by the command of Monseur de Guise. The day before there was a great prelate, to make themselves knowned, who must make the sally chiefly of the young Nobility, led by well experimented Cap-
taines. Insomuch that it was a great favour, to permit them to sally forth, and run
upon the enemy: and they sallied forth alwayes the number of one hundred, or five-
tcore armed men with Curtalles, Muskets, Pitholls, Pikes, Partisans and Halberds,
which were even to their trenches to awaken them. Where they presently made
an alarum throughout all their Campes, and their Drummes founded, plan, plan, ta,
ti, ta, ta, ta, ti, tou, touf, touf: likewise their Trumpets and Cornets, founded,
to the faddle, to the faddle, to horfe, to horfe, to horfe, to horfe, to horfe, to horfe.
And all their souldiers cry'd Arme, Arme, to Armes, to Armes, to Armes, to
Armesarto Armes, to Armesarto Armes. And likewise the cry after Wolues, and all divers
tongues, according to their nations: and they were seen to goe out from their
tents, and little lodgings, as thick as little Bees, when their Hive is discovered; to
succour their fellowes, who had their throates cut like sheepe. The horsemen like-
wise came from all parts, a great gallop, patati, patata, patata, patata, ta, ta, patata,
patata, and tarried well that they might not bee in the throng, where sfoakes
were imparted to give and receive. And when our men saw they were forced,
they returned into the City, fill fighting, and those who runne after were
beaten backe with the Artillery which they had charged with flint stones, and four-
square pieces of iron: and our souldiers who were upon the fayd wall made a volle-
cy of shot, and thowred downe their bullets upon them like hail, to fend them back
to their lodging, where divers remained in the place of the combate, and also our
men did not all come with whole skins, and there still remained some for the
Tythe, who were joyful to dye in the bed of honour. And where there was a horfe
hurt he was flayed, and eaten by the Souldiers in stead of beefe and bacon, and it was
fit I must runne, to dreffe our hurt men. A fewe days after, other sallyes were made,
which did much anger the enemies, because they did not let them sleepe but little
in safety. Monseur de Guise, made a warlike stratagem which was, he sent a Pefant
who was none of the wiseft with two paire of Letters toward the King, to whom
he gave ten Crowns, and promisf the King should give him an hundred, provided
he gave him the letters. In the one he lent word that the enemy made no signe of re-
tiring himselfe, and by all force made a great breacch which he hop't to defend, yea
to the losing of his life, and of all those that were within, and that the enemy had
so well placed his Artillery in a certaine place which be named, that with great dif-
culty was it kept that they had not entred into it, seeing it was a place the most
weake of all the City: but he hoped quickly to fill it up againe in such forre, that
they cannot be able to enter. One of these letters was lowed in the lining of his
dothes, and he was bid to take heed that he told it not to any man. And there was
also another given to him; wherein the fayd Monseur de Guise lent word to the
King, that he & all the beleaguer did hope well to keepe the City, and other matters,
which I caffe to speake of. They made the Pefant goe forth in the night, and present-
ly after, he was taken by one that stood Sentinel, and carried to the Duke of Albe,
to understand what was done in the City, and they asked him if he had any letters,
he say'd yes, and gave them one; and having seene it he was put to his oath, whether
he had any other, and he swore not, then they fled and leart'd him, and found that
which was fowed to his doublet, and the poor messenger was hang'd.

The sally letters were communicated to the Emperor, who caufed his counfell to
be called there, where it was resolve d since they could doe nothing at the first breacch,
that presently the Artillery should be drawne to the place which they thought the
moft weake, where they made great attempts to make another breacch, and dig'd
and undermined the wall, and endeavoured to take the Tower of Hell, yet they durst
not come to the assaulting. The Duke of Albe declared to the Emperor that the souldi-
ers dyed dayly, yet more than the number of two hundred, and that there was but
little hope to enter into the City, seeing the feaason, and the great quantity of souldi-
ers that there were. The Emperor demanded what people they were that dyed, and
and if that they were gentlemen of remarke or quality: answear was made, that they were all poore fouldiers, then faied he, it makes no matter if they dye, comparing them to caterpillers and grashoppers, which eate the buddes of the earth: And if they were of any fation, they would not bee in the campe for twelve shilling the month, and therefore no great harme if they dyed. Moreover he faid he would never part from before that City, till he had taken it by force, or famine, although he should lose all his army: by reason of the great number of Princes which were therein, with the most part of the Nobility of France. From whom he hoped to draw double his expence, and that he would goe once againe to Paris, to vittifie the Parisians, and make him selfe King of all the kingdome of France. From which monie he hoped to make himselfe Captain, and Souldiers, and generally all the Citizens of the City, having underlood the intention of the Emperor, which was to extirpate us all, they advised of all they had to doe: And since it was not permitted to the fouldiers, nor Citizens, nor to the Princes, nor Lords themselves to eate either fresh fish, or Venion, as likewife some Partridges, Woodcocks, Larkes, Plovers, for feare leaff they had gathered some pestifical lyre which might give us any contagion: but that they should content themselves with the ammunition fare, that is to fay, with Bifquite, Beef, powdered Cowes, Lard, and gammons of Bacon: likewife fish, as Greenfish, Salmon, Surgeon, Anchovies, Pilchers and Herrings, also Peafe, Beans, Rife, Garlicke, Orions, Prunes, Cheepe, Butter, Oyle, Salt, Pepper, Ginger, Nutmegges, and other Speicerie to put into pyes, cheefely to hotfeath, which without that would have had a very ill taste, divers Citizens having gardens in the City fowed therein great Raddifhes, Turnippees, Carrots, and Leekes, which they kepe well and full large, against the extremitie of hunger. Now all these ammunition virtualls were distributed by weight, measure, and justice, according to the quality of the person, because we knewe not how long the leige would laffe. For having understood from the mouth of the Emperor, that he would never part from before Moss, till he had taken it by force, or famine, the virtualls were leften for that which was wont to be distributed to three, was now shared amongst foure, and defense made they should not beef what remained after their dinner, but was permitted to give it to the wenchses that followed the Campe. And rofe alwayes from table with an appettite, for feare they should be subject to take Physicke. And before we would yield our selues to the mercy of our enemies, had resolved to eate our Alle, Mules, Horfes, Dogges, Cats, and Ratts, yea our bootes and other skins which we coude often and drye, All the bateiged did generally resolve to defend themselves with all feares of instruments of warre, that isto fay, to rank, and charge the Artillery, at the entry of the breach with bullers, ftones, Cart nayles, barres, and chains of iron. All kinds and differences of artificial fire, as Boues, Bariquadoes, Granadoes, Ports, Lances, torkees, quibbes, burning fangoes, Moreover faleing water, melted lead, powder of unquencht lime to blind their eyes. Also they were resolved to have made holes through, and through their houfes, there to lodge musketiers, there to batter in the flanke, and haften them to goe, or elle make them lye for altogether. Also there was order given to the women to unpave the streets, and to call them out at their windowes, tillers, tables, treffles, for mes, and foode, which would have troubled their brains: moreover there was a little further, a strong Court of Guard, fild with carts and paraffadoes, pipes and hogs heads, fild with earth, for bariquadoes to serve to interlay with faulcons, faulconets, field peeces, harquebuzes, muskets, and pikkels and wilde fire, which would have broken legges and thighs, in much that they had beene beaten in head, in flanke, and in tayle, and where they had forced this Court of Guard, there was others at the croffing of the streets, each diuision of hundred paces, who have beene as bad companions as the fift, and would not have beene without making a great many Widdowes, and Orphans. And it torture would have beene to much againf us, as to have broken our Courts of guard, there was yet heaven great Battallions ordered in square, and triangle, to combate aliogether, each one accompanied with a Prince to give them boldnes, and encourage them to fight, even tillle the laft gape, and to dye altogether. Moreover it was resolved, that each one should carry his creature, rings, and jewels, and their household stuffe of the belt,
to burn them in the great place, and to put them into ashes rather than the enemy should prevale and make trophies of their spoyle, likewise there was people appointed to put fire to the munition, and to burne the heads of the Wine caskets, others to put the fire in each house, to burne our enemies and us together: the citizens had accorded it thus, rather than to see the bloodyknife upon their throats, and their Wives and Daughters violated, and to be taken by force, by the cruel and inhumane Spaniards. Now we had certaine prisoners which Monsieur de Guise sent away upon their faith, to whom was secretly imparted our last resolution, wil and desperate mindes; who being arrived in their Camp, did not deferre the publishing, which bridded the great imperuosity, and will of the fouldiers to enter any more into the City to cut our throates, and to enrich themselves of our pillage. The Emperor having understood this deliverance of the great warriour, the Duke of Guise, put water in his wine, and restrained his great choller and furie, saying, He could not enter into the City without making a great slaughter, and butchery, and spill much blood, afevell of the defendants, as of the affailants, and that they should be dead together, and in the end could have nothing else but a few ashes, and that afterward it might be spoken of that, as of the destruction of Jerusalem already made by Titus and Vespasian. The Emperor then having understood our last resolution, and seeing their little prevailing by their battery, and undermining, and the great plague which was in his whole army, and the indigification of the times, and the want of victualls and money, and that their fouldiers forsoke him, and went away in great companies; concluded in the end to retire themselves accompanied with the Cavallry of his Vantgard, with the greatest part of his Artillery, and the Batterie. The Marquess of Brandeborg was the last which uncamped, maintained by certaine bands of Spaniards, Bohemians, and his German companies, and there remained one day and a halfe after, to the great grieve of Monsieur de Guise, who caused four pieces of Artillery to be brought out of the City, which he caused to be discharged at him on one side, and the other to haften them to be gone, which he did quickly, with all his Troops. He being a quarter of a league from Metz, was taken with a faire leaft our Cavallry should fall upon him in the Re, which caused him to put fire to his munition powder, and leave certaine pieces of Artillery and much baggage which he could not carry because the Vantgard, and the Battalia, and great Cannons had too much broken the way. Our fouldiers would by all meanes have gone out of the City to have fallen upon their breche. But Monsieur de Guise would never permit them, but on the contrary we should rather make plaine their way, and make their bridges of gold and silver, and let them goe, being like to a good shepheard, who will not loose one of his thjeep. See now how our wellbeloved Imperialists went away from before the City of Metz, which was the day after Christmas day, to the great contentment of the besieged, and honour of Princes, Captaines and Souldiers who had endured the travels of this siege the space of two months. Nowwithstanding they did not all goe, there wanted twenty thousand who were dead afevall by Artillery, by the sword, as also by the plague, cold, and hunger, and for spight they could not enter into the City to cut our throates, and have the pillage: and also a great number of their horses dyed, of which they had eaten a great part in feed of Beefe and Bacon. They went where they had beene encamped, where they found divers dead bodys not yet buried, and the earth did digne like Saint Innocents Churchyard, in the time of the plague. They did likewise leave in their lodgings, pavilions and tents, divers fiek people, bullets, carres, Carres, Waggon, & other baggage with a great many of Munition leaves spoyle and rotten by the raine and snow, yet the fouldiers had it not but by weight and measure, & likewise they left great provision of wood, of the remainders of the houses of the Villages which they had pluck downe 5 or 3 miles compasse, likewise divers other houses of pleafure belonging to the Citizens accompanied with faire gardens, grasse plots full with fruite trees, for without that they had beene fiev'd with cold, and had beene constrained to have rais'd the feige sooner. The sayd Monsieur de Guise caused the dead to be buried, and drefle their sickle people, likewise the enemies left in the Abby of S. Armul divers of their hurt fouldiers which they could not leave with them; the sayd Monsieur de Guise lent them all Victualls enough, and commanded me and other Chirurgions to goe drefle them and
Lib. 29.

concerning diverse Voyages.

and give them medicines, which we willingly did, and think they would not have done the like toward others (because the Spaniards are most cruel, perfidious and inhuman, and therefore enemy to all nations) which is proved by Lopez a Spaniard, & Buzo of Milan, & others who have written the History of America, & the West Indies, who have been constrained to confess, that the cruelty, avarice, blasphemy, and wickedness of the Spaniards, have altogether alienated the poor Indians, from the religion which the said Spaniards are laid to hold. And all write they are less worth than the Idolatrous Indians, by the cruel usage done to the said Indians.

And a few days after we sent a Trumpeter to Thionville toward the enemy, that they should send backe for their wounded men in safety, which they did with Carres and Wagons, but not enough. Monsieur de Guise, caufed them to have Carres and Carriers, to helpe to carry them to the said Thionville. Our said Carriers being returned backe, brought us word that the way was paved with dead bodyes, and that they never led backe the halfe, for they dyed in their Carres, and the Spaniards seeing them at the point of death, before they had cast out their last gaspe, cast them out of their Carres, and buried them in the mudde, and mire, saying they had no order to bring backe the dead. Moreover our said Carriers said, they met by the way divers Carres loaden with baggage sticking in the mire, which they durst not send for backe, for feare least those of Mets should fall upon them. I will againe returne to the cause of their mortality, which was principally through hunger, plague, and cold, for the snow was two foote thick upon the earth, and they were lodged in the caves of the earth, only covered with a little straw. Notwithstanding every sodier had his field bed, and a covering fireewed with glittering flares, more bright than fine gold, and every day had white shettes, and lodgd at the signe of the Moonne, and made good cheere, when they had it, and paid their hoste well overnight, that in the morning they went away quiete, taking away the double out of their haires, either of head or beard, and found always a white table cloth, loving good meales for want of victualls. Also the greater part of them had neither bootes, nor buskins, flippers, hose, or shoses, and divers had rather have none than have them, because they were always in mudde, half way of the ledge, and because they went bare legged, we called them EmpeS, Altho the Camp was wholly broken, I distributed my patients into the hands of the Chirurgions of the City, to finish their cure; then I tooke leave of Monsieur de Guise, and came back toward the King, who received me with a loving countenance, and demanded of me how I did enter into the City of Metz. I recounted to him, all that I had done, he caufed two hundred crowne to be given me, and one hundred I had at my going out, and told me he would not leave me poor; then I thanked him most humbly of the good and the honour which he pleased to doe me.

The Voyage of Hedin, 1553.

Charles the Emperor caufed the City of Thionville to be besieged, where Monsieur the Duke of Savoy, was General of the whole army; it was taken by assault, where there was a great number of our men slaine and prisoners. The King willing to prevent that the enemy should not also come to besiege the City & Castle of Hedin, sent Mefliers the Duke Bouillon, the Duke Horace, the Marquess of Villars, a number of Captaines, and about eight hundred soldiers, & during the siege of Thionville, the said Lords fortified the said Castle of Hedin, in such fort that it seemed impregnable. The King sent me to the said Lords to help them with my Art, if there were any neede. Now soone after the taking of Thionville, we were besieged with the army; there was a quicke cleare fountain or Spring, within Cannon shot, where there was about fourscore whores, and wenches of the enemies, who were round about it to draw water. I was upon a Rampart beholding the Camp, and seeing so many idlers about the said fountain, I prayed Monsieur de Ponte, Commandary of the Artillery, to make one Cannon shot, that that gournish company, he made me much delight, adorning me that such kind of people were not worth the powder they should waste.
wafte. Againe I prayed him to levell the Cannon, telling of him, the more dead the fewer enemies, which he did through my request, and at that shot fifteene or sixtieene were kild and many hurt. Our soldiers faile forth upon the enemies, where there was many kild, and flaine with mafter shot and swords, as well on the one side, as on the other, and our soldiers did often make sallyes forth upon the enemies before their trelches were made; where I had much worke cut out, for that I had no reft night nor day for directing the wounded. And I will teell this by the way, that we had put many of them in a great Tower, layd upon a little straw, and their pillows were flones, their coverlets were their cloakes, of those that had any. Whilst the battery was making, as many flot as the Cannons made, the patients sayd they felt paine in their woundes, as if one had given them blowes with a flaffe, the one cryd his head, the other his armes, and fo of other parts; divers of their woundes bleed sorely yea in greater quantity than first when they were wounded, and then it was I must runne to stay their bleeding. My little matter, if you had beene there, you had beene much troubled with your hot irons, you had neede to have had much charcoal to make them red hot, and else ye would have flaine you like a Calfe, for this crueltie. Now through this diabolical tempest of the Ececho from these thundring Instrumens, and by the great and vehement agitation of the collision of the ayre reounding and reverberating in the wounds of the hurt people, divers dyed, and others because they could not reft by reason of the groanes and cries that they made, night and day, and also for want of good nourishment and other ungo necessarie to wounded people. Now my little matter, if you had beene there, you would hardly have given them gelly, refrautatives, bullifes, prelures, panses, cleansed bally, white meate, almon d milke, Prunes, Raifons, and other proper meates for sicke people: your ordinance would only have bene accompli in paper, but in effect they could have had nothing but old Cow beefe, which was taken about He-de for our munition, falsed and halle boyled, inomuch that who would have eate it he must pull it with the force of his teeth, as birds of Prey doe carrion. I will not forget their linen wherewith they were dreft, which was oneely rewashed every day, and dryed at the fire, and thersore dry & flobberne like Parchment. I leave you to thinke how their wounds could heale well. There was a foure lufy whores to whom charg was given to wash their linen, who discharged their duty under penalty of the baronne, and also they wanted both loape and water. See then how the sicke people dyed for want of nourishments, and other necessary things. One day our enemies fancied to give us a general affault, to draw our Soldiers upon the breach, to the end to know our constance and behaviour: every one ranne thither, we had made great provision of artificiall fire, to defend the breach; a Priest belonging to Monifieur de Boullien took a granado, thinking to throw it on the enemies, and set it on fire sooner then he ought to have done: it brake aunder, and the fire fell amongst our fire workes, which were put into a house neere the breach, which was to us a marvelous disaftre, because it burnt diverse poore soldiers: it also tooke hold on the house it felde, and we had bene all burned had not great helpe beene used for to quench it, there was but one well there wherein was water in our Castle, which was allsoe quite dryed up, and in stead of water, we tooke boake and quenched it; then afterwaards we had great scarcity of waters, and to drink the rest that remained which we muft straine through napkins.

Now the enemy seeing this smoke and tempest of the fire workes which caft a very great flame and clathing noyfe, beleived wee had put the fire on purpose for the defence of our breach, to burne them, and that wee had great store of others. That made them to be of another opinion, than to take us by assult; they did undermine, and digge into the greatest part of our walls, so that it was the way to overthrow wholly the Castle topifie turvice, and when the mines were finall, and that their Artillery shot, the whole Castle did shake under us, like an earthquake, which did much astonifie. Moreover he had levelled five pieces of Artillery which they had setted uppon a little hill, to play upon our backes when wee should goe to defend the breach.

The Duke Heracd had a Cannon shot upon one shoulder, which caried away his arm.
concerning diverse Voyages.

arm on one side, and the body on the other, without being able to speak one single word. His death was to us a great disaster for the rank to which he held in this place.

Likewise Monsieur de Martignies had a stroke with a bullet which pierced through his lungs; I drew him, as I will declare hereafter. Then we demanded parole, and a Trumpet was sent toward the Prince of Piedmont, to know what composition it pleased him to make us. His answer was, that all the chieft, as Gentlemen, Captains, Lieutenants, and Ensigns, should be taken for ransom, and the Soldiers should go out without Arms; and if they refused this fair and honest offer, the next day we ought to assure they would have us at will or otherwise. Counsell was held, where I was called to know if I would sign as divers Captains, Gentlemen and others, that the place should be rended up. I made answer it was not possible to be held, and that I would sign it with my proper blood, for the little hope that I had, that we could repulse the enemies force, and also for the great defence which I had to be out of this torment, and hell, for I slept not either night or day, by reason of the great number of hurt people, which were about two hundred. The dead bodies yielded a great putridation, being heaped one upon the other like Faggots, and not being covered with earth because we had it not; and when I entered into one lodging, Soldiers attended me at the door to goe dresse others at another; when I went forth, there was a driver who should have me, and they carried me like a holy body not touching the ground with my foot in spight of another, nor could I satisfy so great a number of hurt people. Moreover I had not what was necessary to dresse them withal; for it is not sufficient that the Chirurgian doe his duty towards the patients, but the patient must also doe his, and the affistance, and all exterior things witness HIPPOCRATES in his first Aphorisme. Now having understood the resolution of the yielding up of our place, I knew our affaires went not well, and for fear of being knowne I gave a velvet Coste, a Satin doublet, a very fine cloth diske I had with velvet, to a Soldier, who gave me a scurril old tom doublet cut and slait with using, and a leather jerkin well examined, and an ill favoured hat, and a little cloak; I munched the collar of my shirt with water in which I had mingled a little foote; likewise I wore out my stockings with a stone at the knees and the heels as if they had been worn a long time, and I did as much to my fingers, in so much that they would rather take me for a Chimney Sweeper, than a Kings Chirurgion. I went in this equipage towards Monsieur de Martignies, where I prayed him that he would take order that I might remaine near him to dresse him, which he agreed to most willingly, and had as much debite I should remaine with him as my life. Soone after, the Commissioners who had charge to elect the prisoners, entered into the Castle, the seventeenth day of July one thousand five hundred fifty three, where they made Messieurs the Duke of Bourbon, the Marquess of Villars, the Baron of Galia, Monseur de Martignies and I to be taken through the request that he made to them; and all other Gentlemen which they could perceive were able to pay any ransom, and the most part of the Soldiars and the cheefe of the Companies, having fuch, and so many prisoners as they would.

Afterward the Spanish Soldiars entered by the Breach without any resistance, for ours esteemed they would hold their faith and composition that they should have their lives saved. They entered in with a great fury to kill, pillage, and rife all they retained; some hoping to have ransom, they tied their stones with Arquebus cord, which was cast over a Pike which two held upon their shoulders, then pulled the said cord with a great violence and derision, as if they would ring a Bell, telling them that they must put themselves to the ransom, and tell of what houres they were; and if they faw they could have no profit, made them cruelly dye betweene their hands, or presently after their general parts would have fallen into a Gangrene, and total mortification, but they held them all with their Daggers, and cut their throats. See now their great cruelty and perfidiousnesse, let him tryst to that will. Now to returne to my purpose being lead from the Castle to the City with Monsieur de Martignies, there was a Gentleman of the Duke of Savoyes, who asked me...
if Monfieur de Martigues wound was curable, I answered, not; who presently went and told the Duke of Savoy, now I thought he would send Physitrons and Chirur-
gians to visit and dress my said Monfieur de Martigues; in the meantime I thought with my self whether I ought to make it nice and not to acknowledge my selfe a Chirurgion for fear lest they should retaine mee to dress their wounded, and in the end they would know I was the Kings Chirurgion, and that they would make me pay a great ransom. On the other side I feared, if I should not make my selfe knowne to be a Chirurgion, and to have carefully dreft Monfieur de Martigues, they would cut my throat; so that I tooke a resolution to make it appeare to them he would not doe for want of good drefting and looking to. Soone after, &c., their arrives divers gentleman accompanied with the Physitron and Chirurgion to the Empereur, and those of the said Duke of Savoy, with five or other Chirurgions fol-
lowing the Army, to see the hurt of the said Lord of Martigues, and to know of mee how I had dreft him, and with what medicines. The Empereurs Physitron bid me declare the elence of the wound, and how I had dreft it. Now all the assistance had a very attentive care to know if the wound were mortall or not: I began to make a discourse that Monfieur de Martigues looking over the wall to perceive them that did undermine it, received a shot from an Arquebus quite through the body presently I was called to dreft him, I saw hee cast blood out of his mouth, and his wounds. Moreover he had a great difficulty of breathing, and cast out winde by the said wounds with a whistling, in so much that it would blow out a Candle, and he said he had a meth fyme pricking paine at the entrance of the Bullet. I doe be-
lieve an thinke it might bee some little pieces of bones which prickt the Lungs. When they made their Syticle and Diafole, I put my finger into him, where I found the entrance of the Bullet to have broken the fourth Rib in the middle and scales of bones which the said Bullet had thrust in, and the out going of it had likewise bro-
ken the fift Rib with pieces of bones which had been driven from within outward; I drew out some but not all, because they were very deep and adherent. I put in each wound a Tent, having the head very large, tyed with a thread, lest by the in-
spiration it might bee drawne into the capacity of the Thorax, which hath beene knowne by experience to the detriment of the poore wounded; for being fallen in, it cannot be taken out, which is the cause that engenders putrefaction, a thing con-
trary to nature. The said Tents were annointed with a medicine compoyd of yolks of Egges, Venic Turpernine, with a little oyle of Rofes; My intention for putting the Tents was to stay the flux of blood, and to hinder that the outward aye did not cut-
ter into the breast, which might have cooled the Lungs and by consequent the heart. The said Tents were also put, to the end that if the might bee given for the blood that was spilt within the Thorax. I put upon the wound great Emplasters of Dianisclithos in which I had reteined oyle of Rofes and Vignon to the avoyding of inflammati-
on, then I put great drops of Oxysrate, and bound him up, but not hard, to the end he might have easie respirations that I drew from him five pourrangers of blood from the Baflulcke veine of the right arme, to the end to make revulsion of the blood which runs from the wounds into the Thorax, having first taken indication from the wounded part, and cheefely his forces, considering his youth and his fan-
guine temper. He presently after went to stoole, and by his urin and feige cast great quantity of blood. And as for the paine which he said he felt at the entrance of the Bullet which was as if he had beene prickt with a bodkin, that was because the Lungs by their motion beate against the splinters of the broken Rib. Now the Lungs are covered with a coate comming from the membrane called Pleura, inter-
woven with nerves of the fist conjugation from the braine, which was cause of the extreme paine he felt; likewise he he had a great difficulty of breathing, which proceeded from the blood which was spilt in the capacity of the Thorax, and upon the Diaphragme, the principal instrument of respiration, and from the dilacerati-
on of the muscles which are betwene each Rib, which helps also to make the expir-
ation and the inspiration, and likewise because the Lungs were tborne and wounded by the Bullet, which hath caused him ever since to spit blacke and putrid blood in coughing. The Feaver feazed him foone after he was hurt, with faintings and lwo-
nings.
It seemed to mee that the saide feaver proceeded from the putridious vapours arifing from the blood which is out of his proper veffels, which hath fallen downe, and will yet flow downe. The wound of the Lungs is growne great and will growe more great, because it is in perpetuall motion, both sleeping and waking, and is dilated and comproff to let in the aire to the heart, and call fuligious vapours out; by the unnaturall heat is made inflammation, then the expulsive vertue is constrained to caft out by cough whatsoever is obnoxious unto it; for the Lungs cannot bee purged by coughing, and by coughing the wound is dilated, and growes greater, from whence the blood flifes out in great abundancc, which blood is drawne from the heart by the veine arteriall to give them nourishment, and to the heart by the *vena cava*. his meate was barely broth, flowed prunes, sometimes pome- de, his drinke was Stifan: He could not lye but upon his backe which flewed he had a great quantity of blood spilt within the capacity of the Thorax, and being spread or spilled along the fpindills, dote not so much preff the Lungs as it doth being laid on the fides or sitting.

What shall I say more, but that the said Lord Martigues since the time he was hurt hath not repofed one houre once, and hath alwaies caft out bloody urines and foolees. Thefe things then, *Meffiers* considered, one can make no other prognosticke but that he will dye in a few dayes, which is to my great grieve. Having ende my discourse I drav him as I was wont having discovered his wounds, the Phyfitions and other affitants prefently knew the truth of what I had said.

The said Phyfitions having felt his pulse and knowne his forces to be almost spent, and abolifhed, concluded with mee that in a few dayes he would dye; and at the fame instant went all toward the Lord of Savoy, where they all faid, that the said Lord *Martigues* would dye in a short tyme, he anfwered, it were poffible if hee were well drav he might escape: Then they all with one voyce faid, hee had beene very well drav, and sollicited with all things neceffary for the curing of his wounded, and could not be better, and that it was impossible to cure him, and that his wound was mortall of neceffity. The *Monfieur* de Savoy fhewed himfelfe to bee very much afcendant and wapt, and asked them againe if for certaine they all held him defpoted and remedifl, they all anfwered, yes. Then a certaine *Spanihe* impoftor offered himfelfe, who promifed on his life that he would cure him, and if he failed to cure him, they fhould cut him in an hundred peeces; but he would not have any Phyfitions, Chirurgians or Apothecaries with him. And at the fame instant the fayd Lord of Savoy told the Phyfitions and Chirurgions they fhou’d not in any wise goe any more to fee the fayd Lord of *Martigues*. Alfo he fent a Gentleman to me to forbid me upon paine of life not to touch any more the faid Lord of *Martigues*, which I promifed not to doe, wherefore I was very glad, seeing he should not dye in my handes, and commanded the fained impoftor to dreffe the faid Lord of *Martigues*. And that he fhould have no other Phyfitions nor Chirurgions but him, he came prefently to the faid Lord of *Martigues*, who told him, *Senor Cavallere el Senor Dogne me ha mandado que vinieffe a curar voftra herida, yo os juro a Dios que antes de acho díat yo os haga saber a Cavallo con la lanza en pano containque no ago que yo quico toque, Comereis y shiereis todas comidas que fueren de vostro gusto y yo hare la diata pro v. m. y defteos de vus asgurar sobre de mi, yo he fandata men los que tinian magores heridas que la voftra*. That is to fay, Lord Cavallere, Monfieur the Duke of Savoy hath commanded me to come dreffe thy wound; I wifh to thee by God, that before eight dayes I will make thee mount on horfebacke with thy Lance in thy hand, provided, that no man may touch thee but my felle; thou flatt eat and drinke any thing thou haft a minde to, I will perfume thy diet for thee, and of this thou maft be aflured upon my promife, I have curred divers who have had greater wounds than thine: and the Lord replyed, God give you the grace to doe it.

He demanded of the fayd Lord a flint and tore it in little ragges, which hee put a croffe, muttering, and murmuring certaine words over the wound; and having dreft him, permitted him to eare and drinke what he would, telling him hee would obferve a dyet for him, which he did, eating but fix prunes and five bins of bread at a meale.
meale, and drinking but beere. Notwithstanding, two days after, the said Lord of Martigues dyed, and my Spaniard, seeing of him in the agony, eclips'd himself, and got away without bidding, farewell to any body; and I believe if he had beene taken he had bin hang'd for his false promises, which he had made to Monsieur the Duke of Savoy, and to divers other gentlemen.

He dyed about tenne of the clocke in the morning, and after dinner, the said Lord of Savoy, sent Physitians and Chirurjgions and his Apothecary, with a great quantity of Drogues, to embalm him; they came accompanied with divers gentlemen and Captaines of the Army.

The Emperors Chirurgion came neere to me, and prayed me kindly to open the body, which I refused, telling him I was not worthy to carry his plaster boxe after him: he prayed me againe, which then I did for his sake, if it so liked him. I would yet againe, that he would give this charge to another Chirurgion of the company, he made me yet anfwer, that he would it should be I, and if I would not doe it, I might hereafter repent it: knowing this his affection, for feare he should not doe me any displeasure, I took the rafer and perfuaded it to all in particular, telling them I was not well praifed to doe such operations which they all refused.

The body being placed upon a table, truly I purposed to shew them that I was an Anatomift, declaring to them divers things, which should be heere too long to recite. I began to tell all the company that I was sure the bullet had broken two ribs, and that it had past through the Lungs, and that they should finde the wound much enlarged, because they are in perpetual motion, sleepeing or waking, and by this motion the wound was the more dilacerated. Also that there was great quantity of blood spilt in the capacity of the breast, and upon the midriff, and splinters of the broken ribs which were beaten in at the entrance of the bullet, and the effuing forth of it, had carried out. Indeed all which I had told them was found true in the dead body.

One of the Physitians asked me, which way the blood might passe to be caft out by Vrine, being contained in the Thoax. I anfwered him that there was a manifest conduit, which is the Pena Auger, who having nourithed the ribsbe, the rest of the blood defends under the Disphragm, and on the left fide is conjointed to the emulent vein, which is the way by which the matter in pleuresies and Empièmes, doe manifeitly empy themselues byurine and foole. As it is likewise seen, the pure milk of the breasts of women newly brought to bed, to defend by the Mammary Vines, and to be evacuated downwards by the necke of the wombe without being mixt with the blood. And such a thing is done as it were by a miracle of nature by her expulsive and fequeftrat vertue, which is seen by experience of two glaffe vellifes called Mount-wine, let the one be filled with water, and the other with Clarce wine, and let them be put the one upon the other, that is to fay, that which fhall bee filled with water, upon that which fhall bee filled with wine, and you fhall apparently fee the wine mount up to the top of the vellif, quite through the water, and the water defend straverf the wine, and goe to the bottome of the vellife without mixture of both; and if such a thing be done externally and openly to the fene of our eye, by things without life you muft beleive the fame in oure understanding. That nature can make matter and blood to passe, having beene out of their vellifes yeathrough the bones without being mingled with the good blood.

Our dis course ended, I embalmed the body, and put it into a Coffine; after that the Emperors Chirurgion tooke me apart, and told me if I would remaine with him that he would use me very well, and that he would cloath me anew, also that I should ride on horfebacke. I thanked him very kindly for the honour he did me, and told him that I had no desire to doe service to strangers, and enemies to my Countrey; then he told mee I was a foole, and if he were prisoner as I, hee would serve the dwell to get his liberty. In the end I told him that I would not dwell at all with him.

The Emperors Physitian returned toward the saide Lord of Savoy, where he declared the caufe of the death of the saide Lord of Martigues, and told him that it was impossible.
impossible for all the men in the world to have cured him; and confirmed againe, that I had done what was necessary to be done, and prayed him to winne mee to his service, and spake better of me than I deservcd.

Having beene perfwaded to take me to his service, he gave change to one of his stewards named Monfieur de Bonenber, to tell me, if I would dwell in his service that he would ufe me kindly: I answered him, that I thank’t him most humbly, and that I had resolved not to dwell with any stranger. This my answer being heard by the Duke of Savoy, he was somewhat in choller, and saie, he would send mee to the Gallies.

Monfieur de vaudeville, Governour of Gravelin, and Colonell of feventene Ensignes of foote, prayed him, to give me to him, to dreffe him of an Vicer which he had in his Leg this five or seven yeares; Monfieur de Savoy told him because I was of worth, that he was content, and if I ranckled his Leg it would be well done; He anfwered that if hee perceived any thing, that hee would caufe my throat to be cut.

Some after, the said Lord of vaudeville sent for me by foure Germane Halberdiers, which affrighted me much, not knowing whither they led mee, they spake no more French than I high Dutch; being arrived at his lodging, he told mee I was welcome, and that I was his; and as foone as I should have cured him of that Vicer in his Leg, that he would give me leave to be gone without taking any ranfome of me. I told him I was not able to pay any ranfome.

Then he made his Physitian and Chirurgions in ordinary to shew mee his ulcerated Leg, having seene and considered it, we went apart into a Chamber where I began to tell them, that the said Vicer was annual, not being simple but complicated: that is to say, of a round figure, and fcaly, having the lips hard and callous, hollow and forded, accompanied with a great varieous vein which did perpetually feed it, besides a great tumor, and a phlegmonous distemper very painefull through the whole Leg, in a body of cholericke complexion; as the haire of his face and beard demonstrated. The method to cure it (if cured it could be) was to begin with universal things, that is, with purgation and bleeding, and with this order of dye, that hee should not ufe any wine at all, nor any falt medicines, or of great noffeilment, chiefly those which did heat the blood: afterward the cure must begin with making divers scarifications about the Vicer, and totally cutting away the callous edges or lips, and giving a long or a triangular figure, for the round will very hardly cure, as the Ancients have left it in writing, which is seene by experience. That done, the fihth must be mundified, as also the corrupted flesh, which should be done with Vagamentum Aegypticum, and upon it a bolster dip in juice of Plantagine and Nightshade and Oxycratr, and roulc the Leg beginning at the foot, and finifli at the knee, not forgetting a little bolster upon the varieous vein, to the end no superfluities should flow to the Vicer. Moreover that he should take rest in his bed, which is commanded by Hippocrates, who faith, that those who have sore Legs should not ufe much standing or sitting, but lying along. And after these things done and the Vicer well mundified, a plate of Lead rubbed with quickesilver should be applied. See then the means, by which the said Lord vaudeville might be cured of the said Vicer all which they found good. Then the Physitian left mee with the Chirurgion, and went to the Lord vaudeville to tell him that he did affure him I would cure him, and told him all that I had resolved to doe, for the cure of his Vicer: whereof hee was very joyful. He made mee to bee called to him, and asked me if I was of the opinion that his Vicer could be cured, and I told him, yes, provided he would be obedient to doe what he ought. He made me a promtice hee would performe me all things which I would appoint; and as soone as his Vicer should be cured, he would give mee liberty to returne without paying any ranfome. Then I beseech’d him to come to a better composition with me, telling him that the time would be too long to bee in liberty, if I stay till hee was perfectly well, and that I hoped within fiftecne dayes the Vicer should bee diminish’d more than one halfe, and it should bee without paine, and that his Physitions and Chirurgions would finifli the rest of the cure very easilie. To which hee agreed, and then I tooke a piece of
of paper, and cut it the largeness of the Vlcer, which I gave him, and kepe as much my felfe. I prayed him to kepe promife, when he shoulde finde his buynesse done: He swore by the faith of a Gentleman he would doe it: then I refolved to dreffe him well, according to the method of Galen, which was, that after all strange thinges were taken out of the Vlcer, and that there wanted nothing but filling up with feitb, I dreft him but once a day, and he found that very strange. And likewise his phyfition which was but a freshe man in those affaires, who would perfwade mee with the Patient, to dreffe him two or three times a day, I prayed him to let me doe what I thought good; and that it was not to prolong the cure, but on the contrary to halten it, for the great desire I had to be in libertie. And that he would looke in Galen in the fourth book of the compofition of medicaments secundum genera, who faith, that ifa medicine doe not remaine long upon the part it profits not fo much, as when it doth continue long, a thing which many Phyfitions have bene ignorant of, and have thought it hath bene better to change the Platter often. And this ill cuftome is fo inveterate and rooted, that the Patients themfelves accuse oftentimes the Chirurgions of negligence, because they doe not oftener remove their emplatters; but they are deceived. For as you have underftood and read in my works in divers places: The qualitie of all bodies which mutually touch, operate one againft another, and both of them suffer something, where one of them is much stronger than the other, becaufe the fad qualities are united, they familiarize with the time, although they are very much differing from the manner, that the quality of the medicament doth unite, and sometimes becomes like to that of the body, which is a very profitable thing. Therefore they fay, he is to be praiyfed much who had invented not to change the Platters fo often, because it is knowne by experience, this is a good invention.

Moreover it is faid, great fault is committed to dreffe Vlcers often in wiping of them hard, for one takes not away only the unprofitable excrement, which is the pas or Sannes of the Vlcer, but the manner whereof the fleith is engendered; wherefore for the reasons aforesaid it is not needfull to dreffe Vlcers fo often.

The fad Lord Pandevelle, would fee whether that which I alledged out of Galen were true, and commanded the fad Phyfition to looke there, for that hee would know it; he caufed the booke to be brought upon the table, where my faying was found true, and then the Phyfition was althamed, and I very joyfull. So that the fad Lord of Pandevelle defired not to be dreffed but once a day, in fomuch that within fifteene dayes the Vlcer was almoft cicatrizt: the compofition being made betwee us, I began to be merry. He made me eate and drinke at his Table, when there was not men of more great ranke with him.

He gave me a great red fcarfe, which he commanded me to ware. I may fay I was as glad of it as a dog hath a clog, for feare he fhoule goe into the vineyard and eate the grapes. The Phyfition and Chirurgion led mee through the Campe to visit their hurt people, where I took notice what our enemies did; I perceived they had no more pieces of Canon, but onely twenty five or thirty pieces for the field.

Monfieur de Pandevelle held Monfieur de Bauge prifoner, the brother of Monfieur de Martigues who dyed at Heidan. The fad Lord of Bauge was prifoner in the Castle of the heape of wood belonging to the Emperor, who had bene taken at Theresienne by two Spanish Souliers. Now the fad Lord of Pandevelle having looked well upon him, conceived he muft be a Gentleman of fome good houfe, and to be the better affered, he caufed him to have his stockings pulled off, & seeing his stockings and his fete cleare and neate, together with his white fine focke, it confirmed him the better in his opinion, that it was a man was able to paye fome good ranfone. He demands of the Souliers if they would take thirty Crownes for their prifoner, and that he would give it to them prefently, to which they agreed willingly, becaufe they had neither means to keepe him, nor feede him, besides they knew not his worth, therefore they delivered their prifoner into the hands of the fad Lord of Pandevelle, who prefently fent him to the Castle of the heape of wood with a guard of feme Souliers with other Gentlemen prifoners of ours. The fad Lord Bauge would
would not discover himselfe, who hee was, and endured very much, being kept but with bread and water, and lay upon a little straw. The said Lord of Vaudenville after the taking of Hedin, sent word to the said Lord Bange and other prisoners, that the place of Hedin was taken, and the lift of those that had beene slaine, and amongst the rest, Monsieur de Martignes: and when the said Lord of Bange heard the found of the death of his brother the Lord Martignes, he began much to weep and lament; his keeper demanded of him, why he made to many & great lamentations? He declared unto them that it was for Monsieur de Martignes his brothers sake. Having understood that, the Captaine of the Castle dispatched a man away quickly, to tell it to Monsieur de Vaudenville that he had a good prisoner; who having received this good newes rejoyned greatly, and the next day sent me with his phyfitioner and four Soldiers to the wood Castle to know if his prisoner would give him fifteen thousand Crowns for a ransom; he would send him free to his owne house, and for the present he offered but the security of two Merchants of Antwerp, that hee would make his agreement with his prisoner. See then why he sent me to the woodden Castle, and commanded the Captaine of the Castle to use him well, and to put him into a Chamber hung with Tapestry, and that they should make his guard more strong, and from that time they made him good chare at his expense.

The answer of the said Lord of Bange was, that to put himself to ransom he was not able; and that it depended upon Monsieur d'Ejlamps his Vnkle, and of Miftris de Bressare his Aunt, and that he had not any means to pay such a ransom. I returned with my keepers to the said Lord and told him the answer of his said prisioner, who told me, perhaps he should not out at so good a rate, which was true, for he was discoverd. And forthwith the Queene of Hungary, and the Duke of Sowey sent word to the Lord Vaudenville, that this morfell was too great for him, and that he must send him to them, (which he did) and that he had enough prisoners besides him: he was put to forty thousand Crowns ransom besides other expences.

Returning toward the said Lord Vaudenville I passed by S.Omer, where I saw their great pieces of battery, whereof the greatest part was flawed and broken. I came backe also by Theresone, where I did not see so much as stone upon stone, unlesse the marke of a great Church. For the Emperour gave commandement to the country people within five or fix leagues about, that they should empty and carry away the stones; in so much, that now one may drive a Cart over the Citty, as is likewise done at Hedin, without any appearance of Castle or Fortreffe. See then the mischeife which comes by the warres.

And to returne to my purpose, presently after my said Lord Vaudenville was very well of his Vicer and little wanted of the entire cure, which was the cause hee gave me my leave, and made me be conducted with a Passeport by a Trumpet to Abbeville, where I tooke post, and went and found the King, Henry my Master at Aulincourt, who received me with joy, and a good countenance.

He sent for the Duke of Guise the high Constable of France, and Monsieur d'Ejlamps, to understand by me what had past at the taking of Hedin; and I made them a faithful report, and assured them I had seen the great pieces of Battery, which they had carried to S.Omer. Whereas the King was very joyful, because he feared lest the enemy should come further into France. He gave me two hundred Crownes to retire my selfe to my owne house, and I was very glad to bee in liberty and out of this great torment and noise of Thunder from the Diabolick artillery, and farre from the Soldiers blasphemies and deniers of God. I will not omit to tell here that after the taking of Hedin, the king was advertised that I was not slaine, but that I was a prisoner, which his Majestie caused to be written to my wife by Monsieur du Goguir his cheefe Phyfitioner, and that shie should not be in any trouble of mind for me, for that I was safe and well, and that he would pay my ransom.

The
The Battell of S. Quintin. 1557.

After the battell of S. Quintin, the King sent me to the Fere in Tartemis toward Monfieur the Marshall of Bourdillon, to have a passe-port by the Duke of Savoy to goe to dress Monfieur the Constable, who was grievously hurt with a Pittoffhot in the backe, whereof he was like to dye, and remained a prisoner in his enemies hands. But the Duke of Savoy would never give consent that I should goe to the said Lord Constable, saying he should not remaine without a Chirurgion, and that he doubted I was not sent onely to dress him, but to give him some advertisement, and that he knew I understood something else besides Chirurgery, and that he knew me to have beene his Prisoner at Hedin. Monfieur the Marshall of Bourdillon adverized the King of the Dukes denial, by which means the King wite to the said Lord of Bourdillon, that if my Lady, the Lord high Constables wife, did send any body of her house, which was an able man, that I should give him a letter, and that I should also have told him by word of mouth, what the King and Monfieur the Cardinal of Lorraine had given me in charge. Two days after there arrives a servaunt of the Lord Constables Chamber, who brought him shirs, and other linnen, for which the sayd Lord Marshall gave Passe-port, to goe to the sayd Lord Constable; I was very glad thereof, and gave him my letter, and gave him his letcon, of that which his Master should doe, being prisoner. I had thought being discharged of my embassage to returne toward the King. But the sayd Lord of Bourdillon pray'd me to stay with him at the Fere to dress a great number of people who were hurt, and were thither retired after the battell, and that he would send word to the King, the cause of my stay; which I did. The wounds of the hurt people were greatly stinking, and full of wormes with Gangrene and putrefacion, so that I was constrained to come to my knife to amputate that which was spoild, which was not without cutting off armes and legges, as also to Trepan divers. Now there were not any medicines to be had at the Fere, because the Chirurgions of our Campe had carried all with them; I found out that the Chariot of the Artillery tarried behind at the Fere, nor had it yet beene touched; I prayd the sayd Lord Marshall that he would cause some of the drogues to be delivered unto me which were in it, which he did, and there was given to me, one halfe onely at a time; and five or sixe days after I way constrained to take them, neither was there halfe enough to dress so great a number of the people, and to correct and stay the putrefacion, and to kill the wormes which were entred into their wounds; I washed them with Aspyrium dissolved in wine and Aqua viva, and did for them, all which I could possibly, yet notwithstanding all my diligence, very many of them dyed.

There were Gentleman at the Fere who had charge to finde out the dead body of Monfieur de Bou-Dolphin the elder, who had bee slaine in the battell; they prayd me to accompany them to the Campe to finde him out amongst the dead, if it were possible, which indeed was impossible, seeing that the bodies were all disfavourd and overwhelmed with putrefacion. We saw more than halfe a league about us the earth covered with dead bodys, neither could we abide long there, for the cadaverous fents, which did arise from the dead bodys, as well of men, as of horfes. And I think we were the cause, that so great a number of flies, rose from the dead bodys, which were procreated by their humidity and the heat of the Sunne, having their tayles greene and blew, that being up in the ayre made a shaddow in the Sunne. We heard them buzz, or humme, which was much mervailous. And I think it was enough to cause the Plague, where they alighred. (My little master) I would you had bee there as I was, to distinguishe the ordures and also to make report to them which were never there. Now being cloyed and annoyed in that Countrey, I prayd Monfieur the Lord Marshall, to give me my leave to be gone, and that I was affayd I should be sicke, by reason of my too great paines, and the stinckes which did arise from the wounded bodys, which did almost all dye, for what diligence ever was used unto them. He made other Chirurgions, to come finish...
concerning diverse Voyages.

The Voyage of the Campe of Amiens, 1558.

The King sent me to Dourlan, and made me to be conducted by Captain Grosh with fifty men in arms, for fear I should be taken by the enemies. And seeing that in the way we were always in alarums, I caused my man to alight, making him to be my master for that time, and I got upon his horse, which carried my male, and took his cloak and hat, and gave him my ambling mare. My man being upon her back, one would have taken him for the master, and I for the servant. Tho' of Dourlan seeing us farre off, thought we were enemies, and let flye their Cannon shot at us. Captain Grosh my conductor, made signe with his hat, that we were not enemies, so that they left shooting, and we entered into Dourlan with great joy.

The Voyage of the Harbor of Grace, 1563.

Yet I will not omit to speake of the voyage of the Harbor of Grace, then when they made the approches to plant the Artillery, the English who were within killed some of our Soldiars, & divers Pioners, who undermined, who when they were fecne to be so hurt that there was no hope of curing, their fellows stripped them & put them yet alive in the mines, which served them for so much filling earth. The English seeing they could not withstand an assault, because they were very much attainted with diseases, and chiefly with the Plague, they yielded, their lives and jewels saved, The King caused them to have shippes to returne to England, being glad to be out of this place infected with the Plague: the greatest part dyed, and carried the Plague into England, and since have not yet beene exempted. Captain Sarlebow master of the Campe, was left there in garrifon, with five Ensignes on foot, who had no fear of the Plague, and were very joyful to enter therein, hoping there to make good cheere. My little master had you beene there you had done as they.
med Master Gilbert one of the chiefe of Monpellier, and others. They could not finde the bullet, I searcht for it very exactly, I perceived by conjecture, that it was entred by the head of the Adintyrum, and that it had runne into the cavity of the fayd bone, which was the caufe we could not finde it. The moft part of them fayd it was entred and loft within the cavity of the body. Monsieur the Prince of the Rocke upon Ton, who intimately loved the King of Navarre, drew me to one fide, and asked me if the wound was mortall, I told him yea, because all wounds made in great joynts, and principally contused wounds, were mortall according to all Authors who have written of them. He enquired of the others what they thought, and cheefely of the fayd Gilbert, who told him that hee had great hope that the King his matter, would be curo, and the fayd Prince was very joyful. Foure daies after the King and the Queene mother, Monsieur the Cardinall of Bourbon his brother, Monsieur the Prince of Rocke upon Ton, Monfieur de Guise, and other great personages, after we had drefsed the King of Navarre,caufed a consultation to be made in their prefences, where there was diverse Physitons and Chirurgions: each man fayd what seemed good unto him, and there was not one of them, who had not good hope of him, faying that the King would be curo, and I perffed alwayes on the contrary.

Monsieur the Prince of the Rocke upon Ton who loved me, withdrew me alfo, and fayd I was onely againft the opinion of all the reft, and prays me not to be obstinate againft fo many worthy men. I anfwered him, that when I faw any good fignes of cures, I would change my advice. Divers consultations were made, where I never changed my word, and prognostiques, fuch as I had made at the firit dreftings, and always fayd that the arme would fall into a Gangrene, which it did, what diligence foever could be had to the contrary, and gave up his foule to God the eighteenth day of his hurt. Monsieur the Prince upon Ton, having heard of the death of the fayd King, fent his Physitian and Chirurgion toward me, named Feure now in ordinary: to the King, and to the Queene mother, to tell me, that he would have the bullet taken out, and that it fhould be lookt for in what place so ever it could be found: then I was very joyfull, and told them that I was well affur'd to finde it quickly, which I did in their prefences, and divers gentlemen. It was lodg'd in the very midft of the cavity of the Adinty bone. My fayd Prince having it, flewed it to the King and the Queene, who all fayd, my prognotticke was found true. The body was layd to refit in the Caflle Galliard, and I returned to Paris, where I found divers hurt men who were hurt at the breach at Rouen, and cheefely Italians, who deffred me very much to drefs them, which I did willingly, there were divers that recovered, and others dyd. I beleive (by my little matter) you were called to drefs fome of them, for the great number there was of them.

The Voyage of the battell of Dreux 1562.

The day after the battell given at Dreux, the King commanded me, to goe drefs Monfieur the Count of En, who had beene hurt with a Piftoill Shot in the right thigh, neere the joynt of the hippe; which fractur'd and broke the Os femini in divers places, from whence divers accidents did arise, and then death, which was to my great griefe. The day after my arrivall I went to the field, where the battell was given, to fee the dead bodys; I faw a league about, all the earth covered, where there was by effimation five and twenty thousand men, or more. All which were diapathe in the face of two hours. I would (by my little matter) for the love I bare you, that you had bene there to recount it to your Schollers and to your children. Now in the mean time while I was at Dreux I vifited and drefs a great number of gentlemen and poore Soulliers, & amongft the reft many Swifher Captaines, I dresseyd 14 in one chamber, only all hurt with Piftoill Shot, and other instruments of Diabolicall fire, and not one of the fourecene dyed. Monfieur the Count of En being dead, I made no long tarrying at Dreux: there came Chirurgions from Paris who performed well their duty toward the hurt people, as Pigra, Caunter, Hubert, and others, and I returned to rouen, where I found divers gentlemen wounded, who had retir'd themselves thither, after the battell to be dres by of their hurts.
The Voyage of the battle of Moncontour, 1569.

Dying the battell of Moncontour King Charles was at Pleffe the Towers, where he heard they had wonne it; a great number of hurt gentlemen and Souldiers withdrew themselves into the City and suburbs of Towers, to be drest and helpe, where the King and Queene Mother commanded me to shew my duty with the other Chirurgions, who were then in quarter, as Figay, du Bois, Portail, and one named Sirre, a Chirurgion of Towers, a man very skilful in Chirurgery, and at that time Chirurgion to the Kings brother; and for the multitude of the wounded were but little in repose, nor the Physitians likewise: Count Mansfield Governor of the Duchy of Luxembourg, Knight of the King of Spaines order, was greatly hurt in the battell, in the left arm, with a Pistoll shot, which broke a great part of the joynt of the elbow, and had retired himselfe to Bourgceuil near Towers being there he sent a gentlemen to the King, affectionately to beseech him to send one of his Chirurgions to helpe him in his hurt. Counsell was held what Chirurgion should be sent. Monseur the Marshall of Montmorency told the King and the Queene, that it was best to send him his cheefe Chirurgion, and declared to them that the sayd Lord Mansfield was one part of the cause of winning the battell. The King sayd that he would not that I should goe, but would have me remaine close to him. Then the Queene Mother sayd, I should but goe and come, and that he must consider it was a strange Lord, who was come from the King of Spaines side, to help and succour him. And upon this he permitted me to goe, provided that I should returne quickly. After this resolution he sent for me, and likewise the Queene Mother, and commanded me to goe finde the sayd Lord Mansfield in the place, where I was to serve him in all I could, for the cure of his hurt. I went and found him, having with me a letter from their Majesties, having seen it, he received me with a good will, and from henceforth discharged three other Chirurgions that drest him, which was to my great griefe, because his hurt seemed to me uneareable. Now at Bourgceuil there were retir'd divers gentlemen, who had beene hurt at the sayd battell, knowing that Monseur de Suisse was there, who had beene also very much hurt with a Pistoll shot through one legge, well assured that he would have good Chirurgions to dresse him, and also that hee being kind and liberal, would assist them with a great part of their necessitie. And for my part, I did helpe and assit them in my Art as much as it was possible, some dyed, some recovered according to their hurts. The Count Ringrose, who had such a shot in the shouder, as the King of Navarre before Bouvar, Monseur de Baffempierre Colonell of twelve hundred horse, was hurt also in such a like place as Count Mansfield, whom I drest and God cured. God so well blessed my worke that within three weekes I led him back to Paris, where I must yet make some incisions in the arm of the sayd Lord Mansfield, to draw out the bones which were greatly broken and carries'd; he was cureed by the grace of God, and gave me an honest reward, so that I was well contented with him and he with me, as he hath since made it appeare; he writes to the Duke of Aosta how that he was cureed of his hurt, and also Monseur de Baffempierre of his, and divers others, which I had drest after the battell of Moncontour, and counselled him to beseech the King of France my good matter, to give me leave to goe see Monseur the Marquess of Aosta his brother.
On the day the Duke of A&ex did not fail to send a Gentleman to the King with a letter, humbly to beseech him to do him so much good and honour, as to permit and command his chefe Chirurgeon to come see the said Marquess of A&ex and his brother; who had received a Musket shot near the knee, with fracture of the bone, about seven months since, with the Physitions and Chirurgions in those parts were much troubled to cure. The King lent for me, and commanded me to go see the said Lord A&ex, and to have done him in all that I could for the cure of his hurt; I told him I would employ all that little knowledge which it had pleased God to give me. I went then conducted by two Gentlemen to the Castle of A&ex, which is a league and a half from Mounts in E&ain, where the said Marquess was as soon as I arrived I visited him, and told him the King had commanded me to come see him, and to dose him of his hurt, he told me he was glad of my coming, and was much bound to the King to have done him the honour, to have sent me to him.

I found him in a great Fever, his eyes very much sunken, with a countenance ghastly and yellow, his tongue dry and rough, and all the body emaciated and lean, his speech low like that of a dying man; then I found his thigh much swollen, a\pneumated and distended, and calling out a greenish flinking matter; I searched it with a silver probe, and by the fame I found a cavity near the groyne, ending in the middle of the thigh, and others about the knee, famous and cuniculous; also certain scales of bones some separated, others not. The Legge was much tumified, and focked with a putridous humour, cold, moist, and flatulent; in so much that the natural heat was in the way to be suffocated, and extinguished, and the said Legge crooked and retracted toward the buttocks, his rumpe ulcerated the breadth of the palm of an hand, and he said he felt there a great paine and sickening, and likewise in his thigh, in so much that he could not take any rest night or day; neither had he any appetite to eat, but to drink enough; it was told me he fell often into faintings and swoonings, and sometimes as it were into an Epilepsie, and sometimes desire to vomit, with such a trembling that he could not carry his hands to his mouth. Seeing and considering all these great accidents, and the forces much abated; truly I was much grieved to have gone to him, because I thought there was little appearance that he could escape. Notwithstanding to give him courage and good hope, I told him, that I would quickly let him on foot by the grace of God, and the Physitions and Chirurgions helpe. Having seen him, I went a walking into a Garden, where I prayed to God that hee would give me such a grace to cure him, and that hee would give a blessing to our hands, and medicaments, to combat against so many complicated maladies. I betought in my minde the ways I must keepe to doe it. They called mee to dinner, I entered into the kitchen where I saw taken out of a great por, half a Minton, a quarter of Veale, three great peeces of Beefe, and two Pullets, and a great piece of Bacon, with great store of good Harebes. Then I said to my selfe this broth was full of juice, and of good nourishment. After dinner all the Physitions and Chirurgions assembled, we entred into conference in the presence of Monfeur the Duke of A&ex, and some Gentlemen that did accompany him; I began to tell the Chirurgions that I marvelled much they had made no aperitions in the Marquesses thigh, which was all a\pneumated, and the matter which fluxed out was very soule and flinking, which showed it had a long time lurked there, and that I had found with my probe a Curtesis in the bone, and small scales which were already separated; they made mee answer hee would never give confidence, and likewise it was almost two months since they could winne him to put on clean sheets on his bed, neither dute one feare to touch the coverlet; hee feeleth so great paine. Then I said hee could not live, we must touch other things than the coverlet of the bed. Each one said what he thought best of the Lords greese, and for conclusion held it altogether deplorable. I told them there was yet some hope, because of his youth, and that God and nature doe sometime fuch things which seeme to Physitions and Chirurgions to bee impossible. My consultation was
was, that all these accidents were come by reason of the bullet hitting near the joint of the knee, which had broken the Ligaments, tendons, and sapemnes of the muscles which the said joint together with the Os femoris also nerves, veins, and arteries from whence had followed pain, inflammation, apoplexy and ulcer: and that we must begin the cure by the diseaše, which was the cause of all the said accidents, that is to say, to make apertures to give issue to the matter retained in the interspaces of the muscles, and in the substance of them. Likewise to the bones which cauſed a great corruption in the whole thigh, from whence the vapors did arise and were carried to the heart, which causeth the fire, and the feaver, and the fever an universal heat through the whole body; and by consequent, depravation of the whole Oconomies. Likewise that the said vapours were communicated to the braine, which causeth the Epilepsie, and trembling, and to the stomacke disdance and loathing, and hindered it from doing his functions, which are chiefely to concoct and digest the meat, and to convert it into Chymus, which not being well concocted, they engender crudities and obstructions, which makes that the parts are nourished, and by consequent the body dyes, and growes lean; and because also it did not doe any exercise, for every part which hath not his motion remaineth languid, and atrophised, because the heat & spirits are not sent or drawn thither, from whence followeth mortification. And to nourish and fatten the body, frictions must be made universally through the whole body, with warme linen cloathes, above, below, on the right side, and left, and round about: to the end to draw the blood and spirits from within outward, and to resolve any fuliginous vapours retained betwene the skinne, and the flesh: thereby the parts shall be nourished and restored, (as I have heretofore sayd in the tenth booke treating of wounds of Gunshot) and we must then cease when we see heat and redness in the skinne, for scarce of resolwing that we have already drawn, and by consequent make it become more lean. As for the Vicer which he had upon his rampe, which came through too long lying upon it without being removd, which was the cause that the spirits could not flourish or shine in it; by the meanes of which there should bee inflammation, apoplexy and then ulcer, yea with loss of substance of the subject flesh, with a very great paine; because of the nerves which are disseminated in this part. That we must likewise put him into another soft bed, and give him a cleane shirt, and shirts; otherwise all that we could doe would serve for nothing, because that those excrements and vapors of the matter retained so long in his bed, are drawn in by the Sphy tome and Diastole of the Arteries which are disseminated through the skin, and cause the spirits to change and acquire an ill quality and corruption, which is seen in those that shall lye in a bed where one hath sweate for the Pox, who will get the Pox by the putrid vapours which shall remaine foaked in the sheets and coverles. Now the cause why he could in no wise sleepe, and was as it were in a consumption, was because he eat little, and did not doe any exercise, and because he was grieved with extreme paine. For there is nothing that abarseth so much the strength as paine. The cause why his tongue was dry and fowlwe, was through the vehemence of the heat of the feaver, by the vapors which ascended through the whole body to the mouth. For as we say in a common proverbe, when an Oven is well heate, the throat feel differ. Having discoursed of the cauſes and accidents, I sayd they must be cured by their contraries, and first we must appease the paine, making apertions in the thigh to evacuate the matter retained, not evacuating all at a time for feare leafh by a sodain great evacuation there might happen a great decay of spirits, which might much weaken the patient and shorten his dayes. Secondly, to looke unto the great swelling and cold in his Legge, fearing lest it should fall into a Gangrene, and that actuall heat must bee applied unto him because the potentiall could not reduce the intemperature, de potentia ad aërium; for this cause hot bricke must bee applied round about, on which should bee caft a decoction of nervall heartes boyled in wine and Vinegar, then wrappe up in some napkin, and to the face an earthen bottle filled with the saide decoction, flops and wrappe up with some linen clothes; also that fomentations must be made upon the thigh, and the whole Legge.
Leggie, of a decoction made of Sage, Rosemary, Time, Lavender, flowers of Camomile, melilot, and red Roses boiled in white wine, and a Licorice made with oak allies with a little Vinegar, and half an handful of salt. This decoction hath virtue to attenuate, incite, resolve and drye the grosse vitious humor. The said fomentations must bee used a long while, to the end there may bee a greater resolution; for being so done a long time together, more is resolved than attracted, because the humor contained in the part is liquified, the skin and the flesh of the muscles is rarified. Thirdly, that there must be applied upon the rumpe a great emplaster made of the red deficcative and Vungamentum Comitissis of each equal parts incorporated together, to the end to appeale his paine and drie up the Viscer, also to make him a little downe pillow which might bear his rumpe alio without leaning upon it. Fourthly to refresh the heart of his kidneys one should apply the unguent called Refrigerans Galenis, freshly made, and upon that the leaves of water Lillies. Then a napkin dipt in Oxycrater, wrung out and often renewed; and for the corroboration and strengthening of his heart a refreshing medicine should bee applied made with oyle of Neemphar, and unguent of Roses and a little taffron dissolved in Rose Vinegar, and Treakle spread upon a piece of Scarlet: For the Sitope which proceeded from the debilitation of the natural strength troubling the braine. Alfo he must use good nourishment full of juice, as rare egges, Damaske prunes stewed in wine and sugar, alio Panado made with the broth of the great pot of which I have already spoken with the white flitty parts of Capons, and Partridge wings minced small, and other rostinate caffe of digestion, as Veale, Goate, Pigeon, Partridge, and the like. The sauce should be Oranges, Verjuice, Sorrell, sharpe Pomegranets; and that he should likewise eat of them boyled with good hearbes; as Sorrell, Lettuce, Succory, Buglofe, Marygoldis, and other the like. At night here might use cleancut barley with juice of Neemphar and Sorrell, of each two ounces, with five or fix grains of Opium and of the four cold feedes bruised, of each halfe an ounce, which is a remedy nourishing and medicinally, which will provoke him to sleepe: that his bread should be of Melin, neither too new nor too flute; and for the great paine of his head, his hairr must be cut, and rub his head with Oxsirrhodium, and leave a double cloth wet therein upon it; likewise should be made for him a frontall of oyle of Roses, Poppies, and a little opium and Rose Vinegar, and a little Campher and to renew it sometimes. Moreover one should cause him to smell to the flowers of Henbane and Aiwantar bruised with Viniger Rose water, and a little campher wrapped in a handkercher, which (hall be of ten and a long time held to his nofe to the end that the f Rach may be communicated to the braine, and these things to be continued till that the great inflammation and paine be past, for feare of cooling the braine too much. Besides, one may cause it to raine artificially in pouring downe from some high place into a kettle, and that it make such a noyse that the patient may heare it, by these means sleepe shall bee provoked on him. And as for the retraction of his Legge that there was hope to redrefle it, when evacuation was made of the matter and other humors contained in the thigh, which by their extention (made by repletion) have drawne backe the Leg, which might be remedied in rubbing the whole joyme of the knee with Verganum Distichas and oyle of Lillies, and a little aqua vita, and upon it to be laid blacke wooll with the greafe thereof. Likewise putting in the hamsse a feather-pillow fouled in double, and by little and little to make his Legg to stretch out. All which my discours was well approved of by the Physitians and Chirurgions; the consultation ended wee went to the sicke patient, and I made him three apertions in his thigh, from whence there issued out great quantity of matter and Saines; and at the same time I drew out some scales of bones, nor would I let out too much abundance of the said matter for feare of too much decaying his strength. Then two or three hours after I caused a bed to bee made neare his owne, where there were cleane white sheets then a strong man lifted him into it, and rejoiced much in that hee was taken out of his foule flinking bed. Soone after hee demanded to fleepe, which hee did almost four hours, where all the people of the house began to rejoice, cheefely Monseur the Duke of Affr his brother.
The days following I made injections into the bottom and cavities of the Vlcer, made with *Aegyptiacum*, dissolved sometimes in *aquavitae*, and sometimes in wine. I applied to the mouth and dry the spongie and loose flesh, bolsters, at the bottom of the sinuosityes hollow tents of Lead, that the *Sanies* might have passage out; and upon it a great Emplaster of *Dioscorea* dissolved in wine; likewise I did bowl it with such dexterity, that he had no paine, which being appeased the fever began much to diminish. Then I made him drinke wine moderately allayed with water, knowing that it restores and quickens the spirits: and all the things which we rested on in the constitution were accomplished, according to time, and order; and his pains and fever ceased, he began to grow better, and discharged two of his Chirurgions, and one of his Physitians, so that we were but three with him. Now I remained thereabout two monethes, which was not without seeing divers sick people, as well rich as poore which came to me; and gave meate and drinke to the needy, all which he recommended to me, and prayed me also for his sake to help them. I protest I did not refuse any one, and did to them what I possibly could, whereof he was joyful. Then when I saw he began to mend, I told him he must have a comfort of Violons & a jester to make him merry, which he did in one moneth we so wrought, that he could hold himslef up in a chaire, and made himslef to be carried and walke in his garden, and at the gate of his Castle to see the people passe by. The Countrie people of two or three leagues about, knowing they could see him, came the next day male and female, to sing and dance pell mell, in joy of his amendment, all being very glad to see him, which was not done without good laughing and drinking. He caus'd still a barrel of beere to be given them, and they drank all merrily to his good health. And the Citizens of Monts, and other gentle- men neighbours came to see him in admiration, as a man coming from the tombe. And as soon as he began to mend, he was not without company, and as one went out another came in, to visit him: his table was always well covered. He was greatly loved of the Nobility, and of the common people, as well for his liberality as by reason of his beauty, and honesty, having a pleasant looke and a gracious speeche, insomuch that those that beheld his face were constrained to love him. The cheefe of the City of Monts came on Saturday to beseech him to permit me to goe to Monts, where they had a great defire to eat, and make me good cheere for his sake. He told them he would pray me to goe there, which he did. But I made them answere that they should not doe me so much honour, as also that they could not give me better cheere than I had with him. And he prayd me againe affiduously to goe thither, and that I should doe that for his sake, to which I agreed. The day after they fetched me with two Coaches, and being arrived at Monts we found the dinner ready, and the cheefe of the City with their wives, stayed for me with a good will. We went to the Table and they placed me at the upper end, and drank to me, and to the health of Monfsieur D'Auret, saying that he was very happy, and they likewise to have obtained me to take him in hand, for that they knew that in this company, he was greatly honoured and loved. After dinner they led me backe to the Castle of *Auret*, where Monsieur the Marqueffe stayd for me with great expectation to recount unto him, what we had done in our banquet, I told him that all the company had dranke divers times to his health in 6 weekes he began to uphold himslef a little with crutches, and to grow very fat and get a lively natural colour. Now he had a desire to goe to *Beaumont* which is the dwelling place of Monsieur the Duke of *Auret*, and made himslef be carried in a great chaire with eight men by turns, and the Country folkes where we paffed along, knowing 'twas Monsieur the Marqueffe fought and grove together who should carry him, and constrained us to drink, but it was but Beere, but I beleive had it bene Wine or Hippocras they would have given it us with a very good will, so much did they shew themselves joyfull to see the sayd Marqueffe, and prayd all to God for him. Being arrived at *Beaumont* all the people came before us to doe him reverence, and prayd God to bleffe him, and keep him in good health. We entred into the Castle where there was more than 50 gentlemens which the Duke of *Auret* had lent for to come make good cheere with his brother, who kept his table furniish three days together. After dinner the
The King with his Campe remained not long at Bourges, but those within yeelded it up, and went out with their jewels faved. I know nothing worthy of memory, but that a Boy of the Kings privie kitchin, who being neere the walls of the City before the composition was made, cried with a loud voyce, Huguenot, Huguenot, shoot here, shoot here, having his armes lifted up, and his hand stretched out; a fouldier shot his hand quite through with a bullet: having received his stroak, he came and found me out to drefte him. My Lord high Constable, seeing the Boy to have his hand all bloody, and all rent and torn; demanded of him who had hurt him. Then there was a gentleman who faw the shot made, faid it was well belotow'd because he cried, Huguenot, shoot here, shoot here. Then the fayd Lord Constable fayd this Huguenot was a good musketiere, and bare a pittifull mind, for it was very like if he would have shot at his head, he might have done it more easily than in the hand. I drefed the fayd Cooke who was very sick, but at length was cured, but with lameness of his hand, and ever since his companions call him Huguenot; he is living.

And as for the battell of Saint Denis, there were divers flaine as well on one fide as on the other: ours being hurt, went backe to Paris to be drefled together with the Prifoners who were taken, whereof I drefed a great part. The King commanded me by the requelt of the Lady high Constable, to goe to her houfe to drefte my Lord, who had received a Piftoll shot in the middle of the fpondills of his backe, whereby he presently loft all lence and motion of thighs and legges, with retention
of excrements, not being able to call out his urine, nor anything by the fundament, because that the spinal marrow, (from whence proceed the fine nerves to give sense and motion to the interior parts,) was bruised, broken, and torn by the tremendous of the bullet. He likewise lost his reason, and understanding, and in a few days he dyed. The Chirurgians of Paris were a long time troubled to dress the said wounded people, I believe (my little master) that you saw some of them. I beseech the great God of Victories, that we may never be employed in such evil encounters, and disasters.

The voyage of Bayonne, 1564.

Now I say moreover, what I did in the voyage with the King to Bayonne, where we have been two yeares and more to compass all this Kingdom, where in divers Cities and Villages I have been called into consultations for divers diseases, with the deceased Monsieur Chaplain chefe Physician to the King, and Monsieur Chastellan chefe to the Queen Mother, a man of great honour and knowledge in Physic and Chirurgery; making this voyage I was always inquisitive of the Chirurgians if they had marked any rare thing of remarke in their practice, to the end to learn some new thing. Being at Bayonne there happened two things of remarke for the young Chirurgians. The first was, that I dress a Spanish Gentleman, who had a grievous great impollume in his heart, he came to have been touched by the deceased King Charles for the Evill. I made incision in his Apisteme, where there was found great quantity of creeping wormes as bigge as the point of a spindel, having a blacke head; and there was great quantity of rotten flesh. Moreover there was under his tongue an impollume called Banulis, which hindered him to utter forth his words, and to eat and swallow his meate; he prayd mee with his held up hands to open it for him if it could be done without peril of his person, which I immediately did, and found under my Lancet a solid body, which was five stoncs like those which are drawn from the bladder. The greatest was as big as an Almond and the other like little long Beanes, which were five in number, in this aposteme was contained a slimy humor of a yellow colour which was more than foure spoonefulls, I left him in the hands of a Chirurgion of the Citty to finish the cure.

Monsieur de Fontaine Knight of the Kings Order, had a great continuall pestilent Fever, accompanied with divers Carboncles in divers parts of his body, who was two daies without ceasing to bleed at nofe, nor could it be staynt; and by that means the fever ceased with a very great sweat, and soone after the Carboncles ripened and were by me dressed and by the grace of God cured.

I have publish this Apologie to the end that each man may know, with what foot I have always Marched, and I thinke there is not any man so ticklish, which taketh not in good part what I have said, seeing my discourse is true, and that the effect sheweth the thing to the eye, reason being my warrant against all Calumities.

The end of the Apologie and Voyages.

FINIS.
A GENERAL

TABLE OF ALL THE

CHIEFESTHINGS TREAT-
ed of in this Worke.

Borusions why frequent in a pestilent season. Pag. 811
... their causes, &c. 921
Abducentes musculi. 223, 238
... how to be opened. 259
Acumen, the symptoms caused thereby, and their cure. 807
Actual Centuries preferred before Peteni-
tials, 749. Their forms and use, 750.
...Their force against venomous bites, 784
Alium, the definition and division there-
of. 23
Voluntary Action. 24
...Aditures their bites, the symptoms there-
one ensuing, together with the cure. 790
Addipolis venen. 116
Adductores musculi. 222
Adjuncts of things natural. 27
Adnata, five Conjunctiva, one of the coats of the Eye. 182
...Euglotes what, 948. the differences thereof, laid the cure. 649
...Egyptiacum, the force thereof against po-
trexification, 433, a cleanser and not a sup-
purative, 46, descriptions thereof, 456,
...the praise thereof. 856
...Afterbirth, see Secondine. 1
...After-tongue. 195
...After-wrest. 518
...Age what, the division thereof. 9
...Ages compared to the foure seasons of the year; 10
Ageneia what. 40
...Agues, see Quotidian, Quartaine, Tertian. 286
Basilard Agues how cured. 1046
...Agglutinative medecines, 326, their nature
and use. 1046
...Aire an Element, the prime qualities thereof,
6, the necessity thereof for life, 29, which
hurtsfull, 30, what understands thereby, ib.
...How it changes our bodies, 31. Though in
Summer colder than the Braine, 357.
...How it becomes hurtfull, 416. How to be
...corrected, 439. Of what force in breeding
diseases, 433, what force the Starres have
upon it, 434. How that which is corrupt
or venomous may kill a man, 782. How
...it may bee corrupted, 819. Pent up it is
...apt to putrifie, 837, change thereof con-
duces to the cure of the Plague. 837.
...All what. 130
Allantoides tunica, there is no such, showed
...by three several reasons. 132
...Albugineus humer, the use thereof. 184
...Almonds of the shrowte or ears, their Histo-
...ry, 193, their tumor with the causes and
signes thereof, 293, The cure. 294
...Almonds encreas the paine of the head, 357
Alpecia what, the cause, which curable,
and how, and which not. 67
...Ammios tunica the substancie and compofure
thereof. 138
Oe338 %
Ampu-
The Table.

Amphibilithroides, vel rectiformis tunicâ. 183

Amputatio of a member when to be made, 457. How to be performed, 458. To

Anatomy, the necessity of the knowledge thereof, 79. A threefold method thereof, 80.

Ampulla, its administration of the lower Bull, 87. Of the seminal, 139. Axiomes, 122, 152, 183, 212, 226.


Après the effects thereof. 39

Anima how many ways taken, 7. See safe. Animal parts which, 83. Their division, 84

Anodyne medicines, 1047. For the eyes, 379 in parne of the teeth. 401

Antipathies must be given in great quantities, 785. No one against all poisons, 809. To

Antipathy betweene some Men and a Cat, 804. Of poisons with poisons, 823

Apes their imitation of mens actions, 69

Aphorismes what, and their ufe. 1069

Aphorismes concerning Chirurgery, 172, 174

Aphorismes concerning Chirurgery selected out of Hippocrates, 1116. 1117. Of the

Apothecaries, chotfe of such as shall have care of those sick of the Plague, 830

Aqua fablata, 122

Aquafortis the poisonous quality, and the cure thereof, 810

Aquae theriacalis the description & manner of making thereof, 755, 824, good against

Aqua vitæ, how distilled. 1100

Arachnoïdes, five aranea tunicæ. 183

Aratiche medicines. 1040

Arachanias a Roman Chirurgyc, flame by the people. 5

Argenium Vivum, see Hydargyrum.

Aristoteles the Philosopher a great ob-

Arm or shoulder bone, the fractures thereof, 575

Arms and the bone and muscles thereof, 214. The defect thereof how to be supplied, 880, 882

Aristolochia, the poisonous quality thereof, and the cure, 810

Arrows, wounds made by them, and their severall forms, 438. How to be drawn forth, 440.

Artery what, 97. The division of the great dependant Artery, 113, 115. Distribution of the left sublunian Artery, 153. Of the Arteries, 157. Of the Arteries, 154


Arthritia what, 243

Auteuria the and the kinds thereof, 242.

Atherides have known. 766

Atoles, see Drop deceive.

Atherides what, and the symptoms that happen thereon with their cure. 794

Atherides what, and the symptoms that happen thereon with their cure. 794

Athene the, the condition thereof, 10

Atheism, the condition thereof, 10

Atherides, see Drop deceive.

Attractive medicines what, 1039

Auriculae cordis, 145

Auriculae cordis, see Attractiones medicines what, 1039

Auriculatia what, see Attractiones medicines what, 1039

Auriculatia, the poisonous quality, and the cure thereof, 810

Auriculatia, the poisonous quality, and the cure thereof, 810

Auriculatia, the poisonous quality, and the cure thereof, 810

Aurea the, the condition thereof, 10

Auta, 184

Back-bone and the use thereof, 198

Bagges the divers fisy and use. 1971

Ball.
The Table,

Ball believes; 415  wounds of the Chest 390
Balneum, 1096, 1097  Bladder of the Gall 110
Balloons fit to beate simple, but cousted 434  Bladder of Stone, 123. The substancesfigure, &c. ibid. Signs of the wounds thereof,
Balle of Vesealitius his description, 1107.  397. Wounds thereof and their cure, &c.
Of Euplopius his description, ibid. aman- 468
nodic, and varicose one.
Bandal, their differences, 553. What club 402
best for them, ibid. Indications how to fit
them, 554. Three kinds necessary in
fractures, 555 Common precepts for their
use, 557. What where to they serve, 558
Barrennes the Hermite, 1017
Barrennes, the cause thereof in men, 931. in
women.
Basilisk, her description, bite and the cure
thereof 742
Battailes where the Author was present, see
Voyages.
Bathes good in pane of the Eyes, 645  Blood, the temper thereof, 11. The material
Bathes their faculties and differences 1074  and efficient causes thereof, 12. Where
How to know whence they have their cii*
Bathes and others, 572. 1ot to whom
hurt fall, 1075. What baths, 1073
Bloodletting, whether necessary at the
beginning of pestilential diseases, 845
Bloodletting, when necessary in a smutina,
261. when in an Erysipelas, 263. When in
a Tertian, 267. In what wounds not
necessary, 326. The two chief indications
thereof, 326.  Why necessary in the Fracture
of the bone, 632. See Phlebotomie.
Bloody Pruse and the causes thereof, &c,
685
Bees, their crafts; 56
Beasts, inventors of some remedies, 56. Their
faculties in peraging 57. Their love and
care of their young, 60. Moth wild ones
may be named, 64. They know one ano-
thers voice, 72
Bees their government, 58. Care and justice
59. Their slumber and to whom
burstfall, 1075. Half baths, 1073
Beautrollabeap of Florida, 1021
Bears, their government, Care and 
59. Their slumber and to whom
Belly pohy not bony The division of the
lower belly, ibid.
Bezwar and Bezoarticke medicine 808
Biceps musculus. 218, 219, 220, 221, 222
Binding of the vessels for bleeding, An
apologie therefore, 1133. Authorities
therefore, 1134. Reason, 1135. Experience,
1136. Histories to confirm it.
1137
Birds their industry in building their nests,
58. Ravenous birds, 70. Counterfeit
means voice, 72. They have taught men to
sing, ibid.
Bird of Paradise, 1017
Birth, see Child-birth.
Biting of man and Beas venenatae, 360
Biting of a Mad-dogge, Adder &c. see Dog,
Adder, &c.
Bitter things not fit to be injected into

---

**Table Content:**

- Ball believes:
- Balneum:
- Balloons:
- Bandal:
- Basilisk:
- Battailes:
- Bathes:
- Blood:
- Bees:
- Beasts:
- Belly:
- Bezwar:
- Biceps:
- Binding of vessels:
- Birds:

**Referenced Sections:**

- Ball believes:
- Balneum:
- Balloons:
- Bandal:
- Basilisk:
- Battailes:
- Bathes:
- Blood:
- Bees:
- Beasts:
- Belly:
- Bezwar:
- Biceps:
- Binding of vessels:
- Birds:

---

**Notes:**

- Ball believes:
- Balneum:
- Balloons:
- Bandal:
- Basilisk:
- Battailes:
- Bathes:
- Blood:
- Bees:
- Beasts:
- Belly:
- Bezwar:
- Biceps:
- Binding of vessels:
- Birds:
The Table.

| Brains and the history thereof | 165. The ventricles thereof, 166. The mammillary processes, | ibid. |
| Brains, the moving or concussion thereof, | 350. how cured, | 376 |
| Braditides. Their magnitude, figure, &c. How they communicate with the womb. | 138 |
| Breast-bone, the history thereof. | 140 |
| Breast bone, the depression or fracture thereof, how helped. | 570 |
| Brevia mulcus. | 218 |
| Bronchocele, the differences thereof and the cure. | 298 |
| Bruises, see Contusions. | 

| Bubo's, by what means the humor that causes them flows downe. | 224 |
| Bubo's, venereal ones returning in againe causes the Lues venerae, 724. Their efficient and materiall causes, 746. Their cure. | ibid |
| Bubo's in the Pox, whence their originall 817. The description, figures and cure, 833. prognosticks, 857 |
| Bubonodecom. what. | 304 |
| Bullets shot out of Guns do not burne. 410. They cannot be so joined, 437. |
| Burnes, how kept from hisiring. See Combustions. | 1002 |
| C. | 

| Cacochymia what. | 37 |
| Cæcum intemini. | 106 |
| Calceum os. | 234 |
| Calciata arteria. | 113 |
| Callus what, and whence it proceeds. | 323 |
| Better generated by meates of grosse nourishment, 562. Made more hardsome by Ligation, ibid. The materiall and efficient causes thereof, 588. Medicines conducing to the generation thereof, ibid. How to know it is a breeding, 589. What may hinder the generation thereof, and how to helpe when ill formed. | 590 |
| Cancelle their kinds and condition. | 70 |
| Cancer, the reason of the name, 779. Causes thereof, ibid. differences, 80. Which not to be cured, ibid. The cure of not ulcerated, ibid. Cure of ulcerated, 81. Topicks medicines to be thereto applied. | 82 |
| Cancer or Canker in a child's mouth how to be helped. | 905 |
| Canons, see Guns. | 

| Carbolizes, their malignitie and the help thereof, 759. Applied to the head they ulcerate the bladder. | 880 |
| Cappons, subject to the Gout. | 707 |
| Caruncles, whence their originall, 817. Why so called, together with their nature, causes and figures, 857. prognosticks, ibid. cure, 889 |
| Caries officium. | 371 |
| Carpillexores muculi. | 222 |
| Capriflexores muculi. | 221 |
| Cartulgo fcufiformis, wel ensiformis. | 136 |
| Caruncles, their causes, figures and cure. | 742 Other ways of cure, 744 |
| Coffers, their forme and use. | 760 |
| Capably a strange Fitch. | 69 |
| Catapultısıke powders. | 363 |
| Catalogue of Medicines and Instruments for their preparation. 1109, 1110, &c. Of Chirurgicall Instruments, 1113, 1114 |
| Cataplasmes, their matter and use. | 1062 |
| Catarrhales, where bred, 154. Their differences, causes, 671. Their cure at the beginning, ibid. The conching of them. | 653 |
| Catarrhs sometimes maligine and killing many. | 821 |
| Cathartick medicines. | 1046 |
| Cats, their poisonous quality, and the Antipathy betweene some men and them. 804 |
| Cathartick medicines their nature and use. | 1046, 1047 |
| Cateries, allual ones preferred before potential, 749. Their severall forms, 749, 750, 751. Their use, 747. Their force against venemous bites, 784. Potentiales cases, 1064 |
| Cephalica vena. | 210 |
| Cephalick ponders how compos'd. | 752 |
| Ceratous, the poisonous quality thereof, and the cure. | 810 |
| Certificates in sundry places. | 1129 |
| Chalazion, an affection of the eyelid. | 642 |
| Chamomile to flage and nature. | 702 |
| Chance, sometimes exceeds Art, 49. Funds and remedies. | 499 |
| Change of native temper, how it happens, 618 |
| Chaps, or Chops occasioned by the Lues venerea, and the cure, 575. In divers parts, 67 |
The Table.

by other means, and their cure. 957
Charcoal cast up to suffocation. 1125
Chemois an affect of the Eyelids, 647
Chefs and the parts thereof, 136. Why partly
by gravity, partly hot, and the di-
vision thereof, 137. The wounds thereof,
388. Their cure 389. They easily dege-
nerate into a Fistula. 391
Child, whether alive or dead in the womb,
913. If dead, then bow to be extracted,
914, 915
Children why like their fathers, and grand-
fathers. 888. Borne without a passage in
the fundament, 898. Their site in the
womb, 900, 901. When and how to bee
measured, 973. Their paine in breeping
teeth, 959. They may have impollumes in
their mothers wombe. 954
Child-birth and the cause thereof, 899. The
nature of the pains of birth, 901.
Women have no certain time, ibid. Signs it
is at hand 902. What to be done after
it, 904.
China root, the preparation and use thereof,
730
Chirurgery, see Surgery.
Chirurgiam, see Surgery.
Choler, the temper thereof. 11. The nature
confidence, colour, taste and use, 13. The
effects thereof, 13. Not natural low bred
and the kinds thereof, 16
Cholerick persons, their habits of body, man-
ers and diseases, 317. They cannot long
break fasting, 707
Chlorion what, 132
Chlyus, what, 12
Cirrocele, a kind of Rupture, etc. 304. The
cure, 312
Cinnemon and the water thereof, 1105
Chowcelle, see Collar-bone.
Cleeris, 130
Chyller, when presently to be given after
bloodletting, 262. See Chyller.
Coates, common cause of the Mufcles and sub-
stances, quantity, &c. thereof, 911. Of the
eye, 138, 139. Of the wombe, 132
Cockatrice, see Basiliske.
Cockes are mainly and martially birds, 66
Coelistics the poysomous quality thereof,
and the cure, 866
Colloucals, and the kinds thereof, 689
Collor, 706
Collar-bones, or Clavicles, their Hiffory,
138, 139. Their fracture, 568. How to
help it, 1014. Their dislocation and cure,
601
Collyria what, their differences & use, 906, 977
Colour is the bewrayer of the temperament, 8
Columna, see Verte.
Combustions, and their differences, 449.
their cure, 450
Common sense what, 896
Comparison between the bigger and leffer
world, 761
Complexus musculus, 201
Composition of medicines, the necessity there-
of, 1099
Compresse, see Bolysters.
Concessions, faults of the first concessions not
mended in the after, 707
Concussion of the Brain, 350. how helped, 376
Condylo mata, what they are, and their cure,
957
Conformation, the faults thereof must bee
speedily helped, 904
Connession, two causes thereof, 250
Convulsions what, their causes, 442. Their
general cure, ibid. How to bee handled if
joined with a wound 445. How without a
wound, ibid. How kept from gangreny, 446
Convolvolus of the rib, 447. Their cure, 634
Convolvolus, the kinds and causes thereof, 339
the cure, 330, 331. Why on the contrary
part in wounds of the head, 317
Convolvolus twitching in broken members
and the cause thereof, 586
Conses have taught the art of undermining
66
Cornea tunica, 183
Corone what, 243
Coronalis vena, 112
Corrodating medicine, 270
Costyle what, 243
Costyledones what, 129, 891
Cowfets, how to proveme them, 863, 948.
How to stop them, 864, 951, 952. The rea-
sion of their name, 945. Their causes, 946,
causes of their suppression, 947. What
symptoms follow thereon, 948. Symptoms
that follow their immoderate flowing, 951
Crab, 69
Crampe the cause and cure thereof, 722
Cranes obverse order in flying and keep
watch, 67
Cremanter mufcles, 120
Cridones, what disease, and the cure, 319
Crocodile may be tamed, 76
Crookedness how helped, 876
Cruellitie, see Artery, 223
Crueus mufculus, 232
Cruis how taken, 223
Cryallinus humor, 178
Cubit the bones and mufcles thereof, 217
Cubit-bones, the fracture of them, 723
Cubieties
<table>
<thead>
<tr>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuboideos os.</td>
<td>234</td>
</tr>
<tr>
<td>Cupping glasses and their use, 694. Their use in the cure of a Bub.</td>
<td>853</td>
</tr>
<tr>
<td>Cures accidental and strange, 49, 50. De- cessiful, 51</td>
<td></td>
</tr>
<tr>
<td>Coffinc box forcible.</td>
<td>33</td>
</tr>
<tr>
<td>Carts, the matter, quantity, figures or thereof, 88</td>
<td></td>
</tr>
<tr>
<td>Cattellship his craft.</td>
<td>68</td>
</tr>
<tr>
<td>Coffice gemella.</td>
<td>112</td>
</tr>
<tr>
<td>Dartos.</td>
<td>119</td>
</tr>
<tr>
<td>Death, the inevitable cause thereof, 41. How sudden to many, 778</td>
<td></td>
</tr>
<tr>
<td>Definition of Chirurgia.</td>
<td>3</td>
</tr>
<tr>
<td>Definition how different from a descrip- tion.</td>
<td>80</td>
</tr>
<tr>
<td>Defluxion of humors how diverted, 256. De- lirium, the causes thereof, 334. The cure, 335</td>
<td></td>
</tr>
<tr>
<td>Deltoides mufculus.</td>
<td>216</td>
</tr>
<tr>
<td>Dentiijaccts, their differences, matter, and form.</td>
<td>1071</td>
</tr>
<tr>
<td>Desplatorius.</td>
<td>112</td>
</tr>
<tr>
<td>Dec.</td>
<td>89</td>
</tr>
<tr>
<td>Deterius, 239, 1043. Their use, ibid, Devils and their differences 986. Their titles and names, 987. They are terrified and angered by divers things. 999. Devil of the Sea, 1004</td>
<td></td>
</tr>
<tr>
<td>Diabetes, what, the causes, signs and cure.</td>
<td>688</td>
</tr>
<tr>
<td>Diaphoreticke medicines.</td>
<td>140</td>
</tr>
<tr>
<td>Diaphragma, see Midriphus, Why called Phrens.</td>
<td>142</td>
</tr>
<tr>
<td>Diaphysis what.</td>
<td>231</td>
</tr>
<tr>
<td>Diarfe Fever, the causes and signs, 260. The cure. 261</td>
<td></td>
</tr>
<tr>
<td>Diatriphs.</td>
<td>242</td>
</tr>
<tr>
<td>Dise-bone.</td>
<td>234</td>
</tr>
<tr>
<td>Diet hath power to alter or preserve the temperament. 28</td>
<td></td>
</tr>
<tr>
<td>Diet convenient for such as have the Gout, 707. For such as fear the stone, 667. In prevention of the Plague, 822. In the cure thereof. 839, 840, 841</td>
<td></td>
</tr>
<tr>
<td>Differences of Muscles.</td>
<td>92, 93</td>
</tr>
<tr>
<td>Digastrum flexores mufculi. 222, 237, 238</td>
<td></td>
</tr>
<tr>
<td>Digastrum tenores mufculi. 221, 237</td>
<td></td>
</tr>
<tr>
<td>Diploea what.</td>
<td>163</td>
</tr>
<tr>
<td>Diffuse the definition and division thereof, 41. Causes, ibid.</td>
<td></td>
</tr>
<tr>
<td>Diffuse strange and monstrous. 49</td>
<td></td>
</tr>
<tr>
<td>Diffusae incident to Sanguine, Cholerick, phlegmaticke and melancholick persons</td>
<td>17. Wherefore some are hereditary, 886. Supernatural, 989. Monstrous accidents in them. 996</td>
</tr>
<tr>
<td>Dislocations, their kinds and manner, 593. their differences, 594. Causes, ibid, Signs, 595. Prognosticks, 595. The general cause, 564, 597. Symptoms that may befall a dislocated member. 634</td>
<td></td>
</tr>
<tr>
<td>Dismembering, see Amputation. Dis- temperature and the diversitie thereof. 41</td>
<td></td>
</tr>
<tr>
<td>Docility of Beasts.</td>
<td>69</td>
</tr>
<tr>
<td>Dogs their love to their masters, 61. Their docilitie, 69. Why they become mad sooner than other creatures, 785. How their bites may be knowne, 786. Prognosticks, 787. The cure of such as are bitten by them. 788</td>
<td></td>
</tr>
<tr>
<td>Dorycnium, the poisonous quality thereof and the cure. 865</td>
<td></td>
</tr>
<tr>
<td>Dover free from adulteries. 62</td>
<td></td>
</tr>
<tr>
<td>Draco marinus, the Sea Dragon his poison- ous puncture, the symptoms &amp; cure. 801</td>
<td></td>
</tr>
<tr>
<td>Dracunculus what, 315. The cure. 316</td>
<td></td>
</tr>
<tr>
<td>Drags his craft.</td>
<td>68</td>
</tr>
<tr>
<td>Dreams of the sanguine, cholerick, phlegma- tike and melancholick persons, 17, 18. Not to be neglected. 36</td>
<td></td>
</tr>
<tr>
<td>Dropic what, 299. The differences, Sym- ptomes and causes, ibid, Signs and prognos- ticks, 300. The cure, 301. Following upon a Tumor of the meseinury, 930</td>
<td></td>
</tr>
<tr>
<td>Dugge, their substance, magnitude, &amp;c. 137</td>
<td></td>
</tr>
<tr>
<td>What to be done to them to dry up milk. 138</td>
<td></td>
</tr>
</tbody>
</table>
The Table.

---

**Duodenum, the magnitude, &c.** 105

**Dura mater, what, 164.** The hurts thereof by Trepanning, and how helped, 373. Remedies for the inflammation and the Apophasation thereof, 374. Why it easily endures acute medicines. 375

---

**Eares, their parts and composition, 189.** Their wounds and cure, 386. To apply their dressings, 873. Their ulcers, 479. Their slopping and thins falling into them how helped. 655

---

**Eares of the heart, 145.**

---

**Earth a cold and dry element, 6.**

---

**Earthquakes, their cause, 415.**

---

**Ecchyrmis, what and how cured, 34.**

---

**Echo, the cause thereof, 190.**

---

**Effects of cholera, 14. Of choler and melan.**

---

**Elogiados Artcria, ii4. Vena, 116.**

---

**Enarthrosis, of articulation, 242.**

---

**Enterocle, a kind of rupture, 304.**

---

**Epithema, to swell the principal parts, 87. Their composition and use, 1064.**

---

**Epiphysialis, of what, the symptomes and cure, 293.**

---

**Epitonicke, or thinning medicines, their kinds and use. 1045.**

---

**Errhines, their differences, description and use. 1068.**

---


---

**Erythroisunicum, 119.**

---

**Estrich between a bird and a beast, 1014. The structure of one.**

---

**Eversion and the kinds thereof, 37. What to be observed therein, 38.**

---

**Eumolpia, standing forth of the navel, 303.**

---

**Epoptes in Lue venerea, 746.**

---

**Experience without reason, of what affects the body, 45.**

---

**Eyes, their size and quickness, 121. Figures, compounds, &c, 182.**

---

**Eyesbrowes, 124.**

---

**Eyelids, 181. To stay them being too large, 641. To open them folded together, 643. To help these itching. 644.**

---

**Evalution and the kinds thereof, 37. How to apply the dressings, 378.**

---

**Facies a declarer of affections and passions, 40. The wounds thereof, 378. How to help the redness thereof, 1089.**

---

**Faculties what, 21. Their division, 22.**

---

**Falling down of the Fundament the causes and**
The Table.

and cure thereof. 313
Fat, the substance, and cause, &c. thereof. 90.
91. Why not generated under the skull. 91.
377. How to be distinguished from the Brain, ibid. the cure thereof being wounded. 398.

Access what. 194
Faucet, her fight with the Herne. 70


Fet and their bones, 233. Their sweat does

Fibula. 231


Figures of Instruments used in Chirurgery, See Instrum. 373
Figures of divers sorts of Javelins and Arrow heads. 438

Figures of Furnaces and other things fit for distillation. 1096, 1099, 1101, 1102, 1104, 1106, 1109.

Figure of a fractured arm with a wound in it. 576. Of a Leg fractured with a wound and bound up. 584. Of Ligatures for extension. 598. How to restore the dislocated spine. 605. Of putting the shoulder into joynt. 609, 610, 611, 612, 613. 614. Of the arms and the use thereof. 615, 616. Of restoring the dislocated Elbow. 610. Of the thighbone dislocated inwards. 628. Outwards. 629. Of restoring a knee dislocated forwards. 631

Figure of a Semicupium. 670. Of a Barrel to be used in the cure of a Caruncle. 743. Of the Helmet flower. 807. Of the fire of the child in the womb. 900. Of leaden nipples. 912. Of a glass to sucke the breasts with. 919


Filings of Lead. 811. How to take away such as be superfluous, and help the bones that stick together. 661. How to supply their defects. 378

Fire
The Table.

Fire and the qualities thereof, 6. The Torse of the Plague. 823
Fishes their Industry, 57. They may be tamed 64
Fisher, a Fish so called, 68
Flatulent Tumors, their causes, signs and cure, 269
Flatulencies about the Joynts counterfeit the Gout, 718
Fistula, lacrimosa, see Agilops.

Fistulas, what, their differences, signs, 484. Their cure, ibid. in the Fundament, 485. Upon wounds of the Chief and the cure, 391
Flabby Parallels, the History thereof, 90
Flies quickly parishes in maritime parts, 416

Flexores musculi, Superior, 238

Flow of blood in wounds how helped. 328
Flow of the Kely how to be stopped. 865, 866

Flying fish of a monstrous shape, 1009
Folicule, what, 331. How to cure the separation of the greater and lesser. 631. The separation from the pappier bone, 632
Fomentations and their uses, 591, 634

Fomentare, their matter and forme, 1094, 1096, 1097, 1098

Fornix, 168

Fixes and their craft, 67
Fracture and what, the differences thereof, 561. Their causes, 562. Signs and prognosticks, ibid. Their general cure, 564. How to help the symptoms, 566. Why deadly in the joynt of the houlder, 570. Why near a joynt more dangerous, 581


Fractures more particularly and first of all, 567. Of the lower jaw, ibid. Of the Collar bone, 568. Of the houlder-blade, 569. Of the breast bone, 570. Of the Rib, 571. Of the vertebræ or Back bone, 572. Of the Holy bone, 574. Of the Ramp, ibid. Of the Hip, ibid. Of the houlder or arm bone, 575. Of the Cubite or Ell a Wound, ibid. Of the Hand, 577:
Of the Thigh, ibid. Of the Thigh near the joynt, 81. Of the patella or whistle bone, 582. Of the leg, 583. Of the bones of the feet, 591
Fractures associated with wounds, how to be bound up, 597, 584
French Poxes, see Lues venerea.
Frictions, their kinds and use, 34
Fuci, how made, 1078
Fumigations, their differences, matter and forme, 1072, 1073
Fundament, the falling downe thereof, 313, 958. The causes and cure.
Fungus, an excrecence sometimes happening in Fractures of the soul, 370, 371

G

Galen Effigies and prais. 1118
Gall and the bladder thereof, 1110
Ganglion what. 272. Properly so called.


Gargaroon, 193

Gargariones, their matter and forme, 1070, repelling, ripening and detergent ones, 297
Gatlicke good against the Plague, 823
Gatirica venai, 112
Galcrepiplois venai, 112 Major, 113
Geefe their marinisse in fleeting over mount Taurus, 68

Gemmis musculi, 237
Geminis musculi, 230

Generation, what it is, 23. What necessary thereto, 889

Generation of the Navell, 891
Giddnesse, see Vertigo
Ginglymos what, 343
Giraffe a strange beast, 1017, 1018
Glandula what sort of Tumor, 272
Glandula lacrimalis, 182

Glandules in general, 108. At the root of the tongue, 193. Their inflammation and cure, 393, 394

Glands penis, 126. Not rightly perforated, how to be helped, 663

Glysters, their differences, materials, 1050, Several descriptions of them, 1051.
The Table.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1031</td>
<td>They may nourish.</td>
</tr>
<tr>
<td>1051</td>
<td>Golden inguinal, intestines, infectious tumors, 279</td>
</tr>
<tr>
<td>1052</td>
<td>Golden ingestion, how made, 309</td>
</tr>
<tr>
<td>1071</td>
<td>Gomphitis what, 424</td>
</tr>
<tr>
<td>1072</td>
<td>Gonorrhoea, how different from a virulent fever, 740</td>
</tr>
<tr>
<td>1073</td>
<td>Goats, the names and kinds thereof, 697</td>
</tr>
<tr>
<td>1074</td>
<td>The occult causes thereof, ibid. The manifest causes thereof, 699, of what parts it may flow, 701, Signs that it flows from the brain, or liver, ibid. How to know this or that humor accompanying the Gouty malignancy, 702, Prognosticke, ibid. The general method to prevent and cure it, 704, Bounties sometimes good, 705, other general remedies, 706, Diet and remedy, 707, What wine not good, 708, How to strengthen the patient, ibid. The palliative cure thereof, 709, Local medicines in a cold Gout, 710, In a hot or sanguine Gout, 713, In a Cholerick Gout, 714, What to be done after the fit is over, 717, Topik or knots how cut off, ibid. The hot gout or sciatica, 719, The cure thereof, 720</td>
</tr>
<tr>
<td>1075</td>
<td>Gout, the general description thereof, 139</td>
</tr>
<tr>
<td>1077</td>
<td>Hearing, the organ, object, thereof, 24</td>
</tr>
<tr>
<td>1078</td>
<td>Heart and the history thereof, 144, 145, The ventricles thereof, 145, Signs of the wounds thereof, 238, Baste me and the fame the efficient cause of all humors at the same time, 114, Three causes thereof, 250, Hector fierce with the differences, causes, signs and cure, 392, Bedeg-gogs, how they provide for their young, 416, 417</td>
</tr>
<tr>
<td>1079</td>
<td>Hellebore, the poison quality, and the cure, 392</td>
</tr>
<tr>
<td>1080</td>
<td>Hemlock, the poisonous quality, and the cure, 392, 806, Henbane the poisonous quality thereof, and the cure, 806, Hemlocke the poisonous quality thereof, and the cure, 805</td>
</tr>
<tr>
<td>1081</td>
<td>Hemorrhoidal, what, their differences and cure, 487, in the necks of the womb, 955, Hemorrhoidalis interna, 112, Externa, 117, Hemorrhoidalis arteria, five mesenterica inferior, 115,</td>
</tr>
</tbody>
</table>
The Table.

| The dislocation thereof, | 620 |
| The cure, | ibid. |
| Ibis, a bird, the inventor of glysters, | 56 |
| Ichneumon, how he seizes himself to affult the Crocodile, | 66 |
| Idleness, the discommodities thereof, | 35 |
| Jejunum intetinun, | 105 |
| Ileum, | 106 |
| Iliaca arteria, | 115 |
| Vena, | 117 |
| Ilium os, | 227 |
| Ill conformation, | 41 |
| Imagination, and the force thereof, | 807 |
| Impostors, their impudence and craft, | 51 |
| Impostum, what, their causes and differences, | 249 |
| Signs of them in general, | 250 |
| Prognostickes, | 252 |
| What considerable in opening of them, | 259 |
| Inanition, see Empyrene. |
| Incus, | 163-191 |
| Indication, whencesoever to be drawn, of feeding, | 33 |
| what, 42. the kind of, 43. a table of them, | 48 |
| obserable in wounds by gun-shot, 426 |
| Infant, what he must take before he sucke, 907 |
| their crying what it doth, 912 how to be preserved in the womb when the mother is dead, 923. See Child. |
| Infatigation, of the almonys of the breast, and their cure, 293-294. of the Uvula, 294. of the eyes, | 645 |
| Infatigation hinders the respition, or putting dislocated members into joint, 619 |
| Inficulus, what, their manner, matter, and use, | 1072 |
| Instruments used in surgery for opening discectes, | 258-259 |
| A Ten for the wombe, 283-295 |
| An iron plate and a small cautery for the cure of the Ranula, 297 |
| Confiictory rings to bind the Columella, 298 |
| Speculum oris, ibid. & 232 |
| Arount with cautery to cauterize the Uvula, |
| An incision knife, 298 |
| An actual cautery with the plate, for the cure of the Empyema, 290, of a pipe to evacuate the water in the Droupc, 303. Wherewith to make the golden ligature, 310, to stitch up wounds, 327 |
| A Raspour or incision knife, 341. A chisel, ib. |
| Saws to divide the skull, ib. a disansumatory |
| Trepan, 346. Rostra pittaci, 347. Scrapers, |
| Hhhhh | 378 |

| Hippocrates, 115, Heon, 106 |
| Hog, a monstrous fish, 1008 |
| Hoga, a monstrous fish, 1008 |
| Holeds of the inner Bats of the skull, 174. of the external Bats thereof, 175, small ones sometimes remain after the cure of great wounds, 384 |
| Holy-bone, his number of Vertebrae, and their use, 198. the fracture thereof, 575 |
| Hordocolum, an affect of the Eye-lids, 642 |
| Horns used in head of Pentoses, 696 |
| Horse-leaches, their application and use, ibid. their vituolvs, and the cure, 800 |
| Hor-bones, how made, 1077 |
| Hulpalis, a monstrous beast, 1017 |
| Humeralia arteria, 113 |
| Vena, 210 |
| Humours, their temperaments, 11. the knowledge of them necessary, ibid. their definition and division, 12. Seros and secondary, as Ros, Cambium, Gluten, 15. An argument of their great purity, 417 |
| Humours of the eye, 182 |
| Aquus, 183 |
| Crytallinus, 184 |
| Vicreus, ibid. |
| Hydceis, 643 |
| Hydragryum, the choice, preparation, and use thereof in the Lues veneris, 731 |
| Hydriaftia, whether accurable, 787 |
| What cure must be used therein, 789 |
| Hydrocephalys, what, 289. The causes, differences, figures, &c. ibid. The cure, 290 |
| Hydrocele, 304-311 |
| Hymnæ, 130 |
| Whether any or no, 937 |
| A history thereof, 938 |
| Hyoides on, the region of the name, compoiture, site, &c. thereof, 191 |
| Hypochondria, their site, 85 |
| Hypochyamus, 651 |
| Hypogastre venæ, 117 |
| Hypopyon, 650 |
| Hypothemar, 222 |

| I. |
| Audince, a medicine therefore, 303 |
| Jaw, the bones thereof, and their productions, 178 |
| The fracture of the lower jaw, 567 |
| How to holpeit, 568 |

<table>
<thead>
<tr>
<th>Table.</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The dislocation thereof,</td>
<td>620</td>
<td>The cure, ibid.</td>
</tr>
<tr>
<td>Ibis, a bird, the inventor of glysters,</td>
<td>56</td>
<td>Ichneumon, how he seizes himself to affult the Crocodile, 66</td>
</tr>
<tr>
<td>Idleness, the discommodities thereof,</td>
<td>35</td>
<td>Jejunum intetinun, 105</td>
</tr>
<tr>
<td>Ileum,</td>
<td>106</td>
<td>Iliaca arteria, 115</td>
</tr>
<tr>
<td>Vena,</td>
<td>117</td>
<td>Ilium os, 227</td>
</tr>
<tr>
<td>Ill conformation,</td>
<td>41</td>
<td>Imagination, and the force thereof, 807</td>
</tr>
<tr>
<td>Impostors, their impudence and craft,</td>
<td>51</td>
<td>Impostum, what, their causes and differences, 249</td>
</tr>
<tr>
<td>Signs of them in general,</td>
<td>250</td>
<td>Prognostickes, 252</td>
</tr>
<tr>
<td>What considerable in opening of them,</td>
<td>259</td>
<td>Inanition, see Empyrene.</td>
</tr>
<tr>
<td>Indication, whencesoever to be drawn, of feeding,</td>
<td>33</td>
<td>what, 42. the kind of, 43. a table of them, 48</td>
</tr>
<tr>
<td>obserable in wounds by gun-shot, 426</td>
<td>Infant, what he must take before he sucke, 907</td>
<td></td>
</tr>
<tr>
<td>their crying what it doth, 912 how to be preserved in the womb when the mother is dead, 923. See Child.</td>
<td>Infatigation, of the almonys of the breast, and their cure, 293-294. of the Uvula, 294. of the eyes, 645</td>
<td></td>
</tr>
<tr>
<td>Infatigation hinders the respition, or putting dislocated members into joint, 619</td>
<td>Inficulus, what, their manner, matter, and use, 1072</td>
<td></td>
</tr>
<tr>
<td>Instruments used in surgery for opening discectes, 258-259</td>
<td>A Ten for the wombe, 283-295</td>
<td></td>
</tr>
<tr>
<td>An iron plate and a small cautery for the cure of the Ranula, 297</td>
<td>Confiictory rings to bind the Columella, 298</td>
<td></td>
</tr>
<tr>
<td>Speculum oris, ibid. &amp; 232</td>
<td>Arount with cautery to cauterize the Uvula, 296</td>
<td></td>
</tr>
<tr>
<td>An incision knife, 298</td>
<td>An actual cautery with the plate, for the cure of the Empyema, 290, of a pipe to evacuate the water in the Droupc, 303. Wherewith to make the golden ligature, 310, to stitch up wounds, 327</td>
<td></td>
</tr>
<tr>
<td>Saws to divide the skull, ib. a disansumatory</td>
<td>Trepan, 346. Rostra pittaci, 347. Scrapers, Hhhhh</td>
<td></td>
</tr>
</tbody>
</table>
The Table.


L.

Agophthalmia, what, 378. the causes and cure, 642. Lamenes how helped, 884. Lamprey, their care of their young, 64. Lampron, their poisonous bite, 801. Larine, what means thereby, 194. its magnitude, figure, compofure, &c. ib. Latiflimus mufculus, 208. Leaches, see Horie-leaches. Legge, taken in general, what, 223. the bone thereof, 231. the wound, 399. the fracture & cure, 582. the cure of the Authors leg being broken, 582. 583. their crowded knee how helped, 584. 585. see supplied, 883. 886. Lepore, & the cases thereof, 769. the signes, 776. &c. why called Morbus leoninus, 771. the poisons, &c. ib. sometimes followes the Lues venerae, 774. Lepus marinus, the poisons, the symptoms, &c. the cure, 803. Levarus mufculus, 208. Levaros Ani, 107. Life, what, & its effects, 895. See Solloc. Ligaments, their n it, 96. why without sinfe, 198. their difference, 199. their wounds, 404. Ligatures for wounds are of three sorts, 325. too hard hurtfull, 374. they must be neatly made, 555. for what uses they chiefly serve, 358. in use at this day for fractures, 579. how in fractures joined with wounds, 584. which for extenfion, 592. See Bandages. Lightning, the wonderful nature, & the sinking of the Aire, 781. Lime unvencht, the hurtful quality & cure, 810. Liniments are not to be used in wounds of the Chest, 390. their matter, form, &c. ib. their wounds, 405. Lion, his provident care in going, 66. Lion of the seas, 1003. Lippitudo, 544. Liver, what, its substance, &c. ibid. 110. signs of the wounds thereof, 539. why it is called parchemya, 893. Loines, their nerves, 226. Longus mufculus, 205. 218. 232. Lues venerae, what, 723. the hurts it causeth, ib. the causes thereof, 724. in what humor the malignity resides, 725. it causes more pain in the night than in the day, ib. sometimes being long, ib. signs thereof, 746. poisons, &c. ib. sometimes, 727. how to be oppugned, 728. to whom wine may be allowed, 730. the second manner of cure, ibid. the third manner of cure, 734.
The Table.


Poysones Adders, Asps, Toads, &c. see Adders, Asps, Toads, &c. Poysonous plants, and the remedies against them, 805. Poysons of Minerals, and their remedies, 809. Preputium, 116. to help the shortness thereof, and such as have beene circumcised, 662. The ulcers thereof are worse than those of the Glands, 737. Preparation of simple medicines, and the divers kinds thereof, 1037. Preervatives against the plague, 824.825.825. Principal parts which, and why so called, 821. Proceffus mammillares, 167. Proceffes of the Vertebres, right, oblique, transverse, 196. that called the tooth, ib. Acromion and Coracoides, 208. Prodigie, what, 961. divers of them, 1025.1026. Prognosticks in Impoiments, 252. in an Erifipelas, 267. in an Oedema, 268. in a Scyrus, 278. in a quartain Ague, 285. in an Anemifa, 287. in the Paretides, 291. in the Dropisle, 300. in a Sarcocele, 312. in wounds, 313. in fractures of the skull, 312. in wounds of the liver and guts, 397. in a Gangrene, 435. in ulcers, 468. in Fractures, 562. in Dislocations, 595. in a dislocated Femur, 600. in the dislocated Vertebre, 606. in a dislocated Hippe, 624. in the stone, 666. in suppression of the urine, 684. in the ulcerated reins and bladder, 686. in the Gout, 702. in the Lues venerea, 727. in a virulent strangury, 739. in the small pox, 778. in the leprosie, 773. concerning poyson, 783. in the bite of a mad dog, 787. in the plague, 835. in plague sores, 857. Promatores musculi, 222. Properties of a good Surgeon, 8. Prophofo oculi, 64. Prophates, 121. Proud
The Table.

Pubis, 238.
Innominate, 234.
See Bones.
Ozana, a filthy ulcer of the nose, the cause and cure, 477.

P.

Pain, and the causes thereof, 250.
Is must be assuaged, 256.
The discomforts thereof, 257.
In wounds how helped, 329.
Palate, the nerves, holes, and coat thereof, &c, 193.
How to supply the defects thereof, 873.
Palmaris muscle, 222.
Palpe, the differences, causes, &c. thereof, 332.
The cure, 333.
Follows upon wounds of the necke, 386.
Pancreas, the substance, site, &c. thereof, 109.
The tumours thereof, 929.
Pannicle, see Fleishy.
Pappe, how to be made for children, 911.
and the condition thereof, ibid.
Paracentesis, and the reasons for and a.
gainst it, 301.
The place where, and manner how, 302.
Paraffoupi, a strange beast, 1018.
Paraffates, their substance, &c. 120.
Paronychia, what, 314.
I be cure, ibid.
Periodes, their site and use, 191.
Their difference, prognostick, care, &c. 391292.
Partridge, their care of their young, 60.
Parts, similar, 81.
Organically, ibid.
Instrumentally, 82.
Things considerable in each part, ibid.
Principal parts which, and why so called, ibid.
of generation, 82. 336. distinguished
into three, 83.
The containing parts of the lower belly, 87.
of the chest, 137.
Passions of the minde, their force, 39.
They help forward putrefaction, 820.
Pallinac marina, or the Sting-Ray, 802.
Pattella, what, 231.
Pectoralis muscle, 208.
Pectum, what, 234.
Pediculus, what, 238.
Pelvis, the site and use thereof, 168.

Pericardium, and the history thereof, 143.
Perineum, what, 125.
Periofitness, the substance and quantity thereof, 100.
The figure, compofure, site, use, &c. 101.
Perone, 231.
Peroneus muscle, 237.
Perurbations of the minde, see Passions.
Pellaries, their form and use, 1053. 1054.
Petition, see Plague.
Petillente Fever, how bred, 837.
Pharinx, what, 194.
Phlebotomy, the invention thereof, 56.
Necessary in a Synochus putrida, 261.
The use, scope, &c. thereof, 691.
How to be performed, 693.
See Blood-letting.
Phlegme, the temper thereof, 11.
In a blood-hale concocted, 13.
Why it hath no proper receptacle, ibid.
The nature, conftance, colour, taste and use, ibid.
The effects thereof, 14.
Not natural, how bred, and the kindes thereof, 16.
How many wais it becomes so, 267.
Phlegmaticke persons, their manners and diseties, 17.
In fasting they feed upon themselves, 707.
Phlegmon, what kind of tumour, 254.
What tumours may be reduced thereto, 2353.
How different from a phlegmonous su.
mour, 254.
How generated, ibid.
The causes, and signs thereof, 275.
The cure, 276.
The cure when it is ulcerated, 278.
Phrenica Arteria, 213.
Phthisis oculi, 646.
Phymosis & paraphymosis, what, 683.
Physick, the subject thereof, 81.
Physicians to have care of such as have the plague, how to be chosen, 830.
Physycue, 394.
Pia mater, the conftance, use, &c. 154.
Pigeons, see Doves, 164.
Pilots, 67.
Pine glandule, 168.
Pirna auris, which, 189.
Pimperlicer, see Ant, 175.
Pineth the backe, Plague, 175.

In wounds how helped, 329.
Pallate, the nerves, holes, and coat thereof, &c, 1IP3.
• How to supply the defects thereof, 873.
Palmaris muscle, 222.
Palpe, the differences, causes, &c. thereof, y 352.
The cure, 333.
To Howes upon wounds of the necke, 38.
Pancreas, substance, site, thereof, 109.
The tumours thereof, 252.

Pannicile, (Pleba.
Pappe, how to be made for children, 91.
and the condition thereof, ibid.
Paracentesis, and the reasons for and against it, 301.
The place where, and manner how, 302.
Paraffoupi, a strange beast, 1018.
Paraffates, their substance, &c. 120.
Paronychia, what, 314.
I be cure, ibid.
Periodes, their site and use, 191.
Their difference, prognostick, care, &c. 391292.
Partridge, their care of their young, 60.
Parts, similar, 81.
Organically, ibid.
Instrumentally, 82.
Things considerable in each part, ibid.
Principal parts which, and why so called, ibid.
of generation, 82. 336. distinguished
into three, 83.
The containing parts of the lower belly, 87.
of the chest, 137.
Passions of the minde, their force, 39.
They help forward putrefaction, 820.
Pallinac marina, or the Sting-Ray, 802.
Pattella, what, 231.
Pectoralis muscle, 208.
Pectum, what, 234.
Pediculus, what, 238.
Pelvis, the site and use thereof, 168.

Pericardium, and the history thereof, 143.
Perineum, what, 125.
Periofitness, the substance and quantity thereof, 100.
The figure, compofure, site, use, &c. 101.
Perone, 231.
Peroneus muscle, 237.
Perurbations of the minde, see Passions.
Pellaries, their form and use, 1053. 1054.
Pettitence, see Plague.
Petillente Fever, how bred, 837.
Pharinx, what, 194.
Phlebotomy, the invention thereof, 56.
Necessary in a Synochus putrida, 261.
The use, scope, &c. thereof, 691.
How to be performed, 693.
See Blood-letting.
Phlegme, the temper thereof, 11.
In a blood-hale concocted, 13.
Why it hath no proper receptacle, ibid.
The nature, constance, colour, taste and use, ibid.
The effects thereof, 14.
Not natural, how bred, and the kindes thereof, 16.
How many makes it becomes so, 267.
Phlegmaticke persons, their manners and diseties, 17.
In fasting they feed upon themselves, 707.
Phlegmon, what kind of tumour, 254.
What tumours may be reduced thereto, 2353.
How different from a phlegmonous humour, 254.
How generated, ibid.
The causes, and signs thereof, 275.
The cure, 276.
The cure when it is ulcerated, 278.
Phrenica Arteria, 213.
Phthisis oculi, 646.
Phymosis & paraphymosis, what, 683.
Physick, the subject thereof, 81.
Physicians to have care of such as have the plague, how to be chosen, 830.
Physycue, 394.
Pia mater, the constance, use, &c. 154.
Pigeons, see Doves, 164.
Pilots, 67.
Pine glandule, 168.
Pirna auris, which, 189.
Pimperlicer, see Ant, 175.
Pineth the backe, Plague, 175.

Phlegme, the temper thereof, 11.
In a blood-hale concocted, 13.
Why it hath no proper receptacle, ibid.
The nature, constance, colour, taste and use, ibid.
The effects thereof, 14.
Not natural, how bred, and the kindes thereof, 16.
How many makes it becomes so, 267.
Phlegmaticke persons, their manners and diseties, 17.
In fasting they feed upon themselves, 707.
Phlegmon, what kind of tumour, 254.
What tumours may be reduced thereto, 2353.
How different from a phlegmonous humour, 254.
How generated, ibid.
The causes, and signs thereof, 275.
The cure, 276.
The cure when it is ulcerated, 278.
Phrenica Arteria, 213.
Phthisis oculi, 646.
Phymosis & paraphymosis, what, 683.
Physick, the subject thereof, 81.
Physicians to have care of such as have the plague, how to be chosen, 830.
Physycue, 394.
Pia mater, the constance, use, &c. 154.
Pigeons, see Doves, 164.
Pilots, 67.
Pine glandule, 168.
Pirna auris, which, 189.
Pimperlicer, see Ant, 175.
Pineth the backe, Plague, 175.
The Table.

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>472</td>
<td>Reason, and the functions thereof</td>
<td>872</td>
</tr>
<tr>
<td>1082</td>
<td>Recti musculi</td>
<td>202.322</td>
</tr>
<tr>
<td>117</td>
<td>Rectum intreutimum</td>
<td>106</td>
</tr>
<tr>
<td>22</td>
<td>Reines, see Kidneys</td>
<td>989</td>
</tr>
<tr>
<td>255</td>
<td>Remedies supernatural</td>
<td></td>
</tr>
<tr>
<td>1062</td>
<td>See medicines</td>
<td></td>
</tr>
<tr>
<td>309</td>
<td>Pureness of a nerve, why deadly</td>
<td>37</td>
</tr>
<tr>
<td>400</td>
<td>What disbodes their use, fit to bee put into, and upon the mind.</td>
<td>379</td>
</tr>
<tr>
<td>845</td>
<td>When to be used</td>
<td></td>
</tr>
<tr>
<td>851</td>
<td>Their cure</td>
<td></td>
</tr>
<tr>
<td>852</td>
<td></td>
<td></td>
</tr>
<tr>
<td>258</td>
<td>Their differences, &amp;c.</td>
<td>1038</td>
</tr>
<tr>
<td>684</td>
<td>Putrefaction in the plague different from common putrefaction</td>
<td></td>
</tr>
<tr>
<td>819</td>
<td>Three causes thereof</td>
<td></td>
</tr>
<tr>
<td>820</td>
<td>Eyes may be taught to speake</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Fyloptus,</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>Pyramidal muscles</td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>Pyrotickes, their nature, kindes, and use</td>
<td></td>
</tr>
<tr>
<td>1046</td>
<td></td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>Quadrigemini musculi</td>
<td>230</td>
</tr>
<tr>
<td>284</td>
<td>Quatuor ague or fever, the causes, symptoms, diagnosicks, and cure</td>
<td>287</td>
</tr>
<tr>
<td>287</td>
<td>Quicksilver, why so called, whether hot or cold, wherefor good, how to purifie, see Hydrogyrum</td>
<td>281</td>
</tr>
<tr>
<td>811</td>
<td>Quotidian fever, the cause thereof</td>
<td>812</td>
</tr>
<tr>
<td>812</td>
<td>The signes, symptoms, &amp;c.</td>
<td>813</td>
</tr>
<tr>
<td>275</td>
<td>They are distinguished from a double Tertian,</td>
<td>276</td>
</tr>
<tr>
<td>276</td>
<td></td>
<td></td>
</tr>
<tr>
<td>573</td>
<td>Racte bones, their fracture, how to bee distinguished from a double Tertian,</td>
<td>574</td>
</tr>
<tr>
<td>360</td>
<td>Radical root draws out venome powerfully,</td>
<td>361</td>
</tr>
<tr>
<td>217</td>
<td>Radius, what</td>
<td>218</td>
</tr>
<tr>
<td>112</td>
<td>Ramus splenicus</td>
<td>113</td>
</tr>
<tr>
<td>113</td>
<td>Mefenteriacus</td>
<td>293</td>
</tr>
<tr>
<td>293</td>
<td>Ranula, why so called, the cause and cure,</td>
<td></td>
</tr>
<tr>
<td>810</td>
<td>Rattie bone, or Rofeter, the poysonous quantity and cure,</td>
<td></td>
</tr>
<tr>
<td>207</td>
<td>Sacred venæ</td>
<td>208</td>
</tr>
<tr>
<td>117</td>
<td>Sacrovenæ</td>
<td>117</td>
</tr>
</tbody>
</table>

The Table.
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sacro-lumbus mufculus</td>
<td>206</td>
</tr>
<tr>
<td>Salamander, the symptoms that ensue upon his poison, and the cure</td>
<td>793</td>
</tr>
<tr>
<td>Sanguine persons, their manners and diseases</td>
<td>38</td>
</tr>
<tr>
<td>Salivation</td>
<td>17</td>
</tr>
<tr>
<td>Saphenous veins when and where to be opened</td>
<td>224</td>
</tr>
<tr>
<td>Sarcocele, the prognostics and cure</td>
<td>304</td>
</tr>
<tr>
<td>Sarcotickes, simple and compound</td>
<td>1044</td>
</tr>
<tr>
<td>None tried such</td>
<td>ibid.</td>
</tr>
<tr>
<td>Scabions, the effects thereof against a pestilent Carbuncle</td>
<td>860</td>
</tr>
<tr>
<td>Scabies, how known to be ferous from the bones</td>
<td>586</td>
</tr>
<tr>
<td>Scabies of Baja, their poisonous quality and cure</td>
<td>312</td>
</tr>
<tr>
<td>Of iron, their harms and cure</td>
<td>ibid.</td>
</tr>
<tr>
<td>Scalpell, the signs and cure thereof</td>
<td>638</td>
</tr>
<tr>
<td>Scalenus mufculus</td>
<td>205</td>
</tr>
<tr>
<td>Scalpe, hairy &amp; o.</td>
<td>160</td>
</tr>
<tr>
<td>Scaphoides os, &amp;c.</td>
<td>67</td>
</tr>
<tr>
<td>Scars, how to help their deformity</td>
<td>861</td>
</tr>
<tr>
<td>Scars, a filf.</td>
<td>292</td>
</tr>
<tr>
<td>Sceletron, 239.240.241. what</td>
<td>242</td>
</tr>
<tr>
<td>Sceletens, the cause, &amp;c.</td>
<td>719</td>
</tr>
<tr>
<td>The cure</td>
<td>720</td>
</tr>
<tr>
<td>Seirrhus, what</td>
<td>278</td>
</tr>
<tr>
<td>What tumours referred thereto</td>
<td>254</td>
</tr>
<tr>
<td>The differences, signs, and prognostics thereof</td>
<td>278</td>
</tr>
<tr>
<td>Cure</td>
<td>ibid.</td>
</tr>
<tr>
<td>Scorpion bred in the brain by smelling to Basilisk</td>
<td>761</td>
</tr>
<tr>
<td>Their description, sign, and cure</td>
<td>797</td>
</tr>
<tr>
<td>Scrophulare, their cause and cure</td>
<td>274</td>
</tr>
<tr>
<td>Scalp and the bones thereof</td>
<td>162</td>
</tr>
<tr>
<td>The fractures thereof, See Fractures</td>
<td>344</td>
</tr>
<tr>
<td>Depression thereof how helped</td>
<td>369</td>
</tr>
<tr>
<td>Where to be trepaned</td>
<td>1007</td>
</tr>
<tr>
<td>Sco, feather and grape</td>
<td>383</td>
</tr>
<tr>
<td>Sen-hare, his description, poison, and the cure thereof</td>
<td>10</td>
</tr>
<tr>
<td>Scutums of the year</td>
<td>904</td>
</tr>
<tr>
<td>Secundine, why presently to be taken away</td>
<td>906</td>
</tr>
<tr>
<td>After the birth of the child</td>
<td>ibid.</td>
</tr>
<tr>
<td>Why so called</td>
<td>ibid.</td>
</tr>
<tr>
<td>Causes of the flag, and symptoms that follow thereon</td>
<td>220.236</td>
</tr>
<tr>
<td>Seed-bones, the condition of which is good</td>
<td>885</td>
</tr>
<tr>
<td>Seed, the condition of which is good</td>
<td>883</td>
</tr>
<tr>
<td>The qualities</td>
<td>883</td>
</tr>
<tr>
<td>The ebullition thereof, &amp;c.</td>
<td>893</td>
</tr>
</tbody>
</table>

**The Table.**

- Why the greatest portion thereof goes to the generation of the head and brain | 894 |
- Seeing, the instruments, object, &c. thereof | 24 |
- Semicupium, the formes, manner, and use thereof | 1073 |
- Semispinaeus mufculus | 207 |
-Senfe, common sense, and the functions thereof | 896 |
- Septum lucidum | 167 |
- Septickes medicines | 1046 |
- Serpent Hamorrous, his bite &c. | 791 |
- Sephs, his bite and cure | ibid. |
- Basiliske, his bite and cure | 792 |
- Asp, his bite and cure | 794 |
- Snake, his bite and cure | 795 |
- Serratus mufculus major, 306. posterior & superior, ibid. minor, 208 |
- Serous humour | 15 |
- Sefamoidia off | 220.236 |
- Seton, wherefore good, 381. the manner of making thereof | ibid. |
- Sepe, what, and the difference thereof | 27 |
- Histories of the change thereof | 794 |
- Shame and shameseineffe, their effects | 40 |
- Shin-bone | 231 |
- Shoulder-blade, the fractures thereof | 569 |
- The cure, 570. the dislocation, 608. the first manner of restoring it, 609. the second manner, 610. the third manner, 611. the fourth manner, ibid. the fifth, 612. the sixth, 614. how to restore it dislocated forwards, 617. outwards, 618. upwards, 619. ibid. |
- Signs of sanguine, cholericke, phlegmatick, and melancholick persons | 17.18 |
- Signs in general whereby to judge of diseases, 112.66 |
- Silkewormes, their industry | 69 |
- Similar parts, how many and which | 81 |
- Simple medicines, their difference in qualities and effects, 1029. hot, cold, moist, dry in all degrees, 1031.1032. their accidental qualities, 1032. their preparation, 1037 |
- Siren | 1001 |
- Skin two-fold, the utmost or scarce-skin | 88 |
- The true skin, 89. the substance, magnitude, &c. thereof | ibid. |
- Sleepe, what it is, 35. the fit time, the use and abuse thereof | 36. when hussfull, 277. how to procure it | 850 |
- Smelling, the object and medium thereof | 24 |
- Snake, his bite, and the cure | 795 |
- Solanum manitum, the poisonous quality, and
The Table.

805. Scolicus musculus, 238.
Solution of combustible, 42, why harder to
repair in bones, 562.
Sorrow, the effects thereof, 39.
Soule, or life, what it performs in plants,
beasts & men, 28, when it enters into man's
body &c. 895.
Sounds, whence the difference, 191.
Southern people how tempered, 17.
South wind why pestilent, 823.
Sovran what, the causes and cure, 334.
Spiceares with what care they breed their
young, 58.
Spermatica arteria, 114, vena, 116.
Spermatic vesicles in men, 119, in women,
126, the causes of their foldings, 887.
Sphinter muscles of the fundament, 106, of
the bladder, 124.
Spiders, their industry, 58, their differences
and bites, 798.
Spinal marrow, the cause, substance, use, &c.
thereof, 175, signs of the wounds thereof,
389.
Spinatus musculus, 2205.
Spin, the direction thereof, 602, 603, how
to restore it, 604, a further enquiry there-
bro, propogistics, 606.
Spine what, threefold, viz. Animal, 
Plant, and Natural, 25, 26, fixed, ibid.,
their use, 27.
Springs, how to be extracted out of herbs and
flowers, &c. 1109.
Spleene, the substance, magnitude, figure,
&c. thereof, 111, 112.
Splenius musculus, 201.
Spleen and their use, 519.
Spring, the temper thereof, 10.
Squintance, the differences, symptoms, &c.
thereof, 206, the cure, 297.
Stapes, one of the bones of the Auditive pas-
sage, 163, 191.
Staphyloma, an affect of the eyes, the causes
thereof, 649.
Stars, how they work upon the Aire, 30.
Star, what, 271.
Stater, the anatomical administration
thereof, 139.
Sternum, the anatomical administration
thereof, 139.
Sternum and their use, 1068.
Stinging of Bees, Wasps, Scorpions, &c. see
Bees, Wasps, Scorpions, &c.
Sting-Ray, the symptoms that follow his
sting, and the cure, 802.
Stink, an insupportable companion of putrefa-

cition, 318.
Stomace, the substance, magnitude, &c.
thereof, 103, the orifices thereof, 104.
signes of the wounds thereof, 396, the ulcers
thereof, 480.
Stones, see Tefoids.
Stone, the causes thereof, 664, signs of it
in the kidneys and bladder, ibid., propog-
istics, 666, the prevention thereof, 667.
what to bee done when the stone falls into
the water, 669, signs it is fallen out of
the water into the bladder, 670, what to
be done when it is in the neck of the blad-
er, or the passage of the yard, 671, how to
cut for the stone in the bladder, 672, 673.
674, &c. how to cure the wound, 679, to
help the ulcer when the urine flows out by
it, 681, how to cut women for the stone,
682, divers strange ones mentioned,
996, 907.
Storks, their piety, 61.
Stoves, how to be made, 1077.
Strongnry, the causes, &c. thereof, 688, a
virulent one, what, 738, the causes and
differences thereof, ibid., propogistics,
739, from what part the maker thereof
flows, ibid. the general cure, 740, the
proper cure, 741, why it succeeds immo-
derate copulation, 887.
Strangulation of the mother or womb, 939.
signs of the approach thereof, 941, the
causes and cure, 942.
Strengthening medicines, see Corroborating.
Strum, see Kings-cvill.
Sublimate, see Mercury.
Subclavian, see Arterie and Veine.
Subclauitus musculus, 201.
Succarath, a beast of the west Indies, 61.
Suffitio, see Cataract.
Suggilations, see Contusions.
Summer, the temper thereof, 10.
Suffocare, see breathing.
Supinatores musculii, 221.
Suppuration, the signs thereof, 251, cau-
seed by natural heat, 275.
Suppuratives, 258, 275, 292, seeffheat.
Up, 433, their differences, &c. 1041.
how they differ from emollients, ibid.
Supererogation what, 924, the reasons,
thereof, ibid.
Suppositories, their difference, form and
use, 1703.
Suppression of urine, see Urine.
Surgery, what, the operations thereof, A.
Surgeons, what necessary for them, 3, their
office, A. the choice of such as shall have
care of these sick of the plague, 830, they
must be careful in making reports, 831.
how long in some cases they must suspend
their
The Table.

their judgements, 1122. they must have a
care lest they bring Magistrates into an
error, 1128: how to report, or make certificates
in divers cases, 1129
Sutures of the skull, their number, &c. 161
wanting in some, ib. why not to be trepanned,
164, 167. Sutures in wounds, their forts
and manner how to be performed, 326, 327.

Sweating sickness, 821
Sweet bread, 108. Sweet waters, 1083
Sympotines, their definition, and division,
43
Sympathy and Antipathy of living crea-
tures, 73
Symphyfis, a kind of articulation, 243
Synarcofis, Synarthrofis, Synchondrofis,
Syrneevois, 243
Synochus putrida, its cause and cure, 261

Thigh bone, the appendices and processes
thereof, 228. 229. the fracture and cure,
577. this to the joint, 580. its dislocation,
623. 720. see Hip.

Things natural, 5. not natural, 29. why so
called, ib. against nature, 41
Thorny, the chest and parts thereof, 133
Thoracic ateria, 153
Thorax, how to get out bones, and such like
things that sticks therein, 655
Thorule, and the parts thereof, 194
Thowes, and their cause, 903
Thymus, what, 156.
Tibia, 231
Tibias anticus muculus, 237. pofticus,
238. Tinea, what, 638
Tocca, his bite and cure, 796
Tooth, the causes, signs, &c. 656.
Tophi, or knots at the joints in some that
have the gout, how caused, 717. in the leu-
es venera how helped, 746
Topeado, his craft and insulting force, 794.
Touching, how performed, 23
Toucha, a strange bird, 1016
Trapezias muculus, 208
Tranversearius muculus, 205
Tranversefes fcles of the Epigastrium, 99
Treacle, how useful in the gout, 706. how it
dulls the force of simple poisons, 783
Trepan, when to be applied, 342. its de-
scription, 365. where to be applied, 1369
Trepanning, why used, 364. how performed,
ib. a caution in performance thereof, 366
Triangularis muculus, 207
Triton, 1001.
Trochanters, 239
Truffles, their forms and use, 306. 307.
Tumors, their differences, 249. their gene-
ral causes, signs, 250. general cure, 252.
which hardest to be cured, ib. the four prin-
cipall, 233. flatulents & murrath, their signs
and cure, 269. 270. of the galls, 322. of the
almonds of the throat, 293. of the na-
evall, 303. of the groine and coads, 304.
the knees, 314
Turtles, 62
Tympanites, see Dropifie.

V.
Alves of the heart, their action, fire, &c.
146.

Varicous bodies, 110
Varices, what, their causes, signs and cure, 483.
The Table.

Vas breve, feu venumum. 113
Vasa, sociatoria, 121. Vafti mufculi, 232
Vena, 97, 97, galle veine, & its distribution, 132. dependent below veine, & its distribution, 132. dependent below veine, & its distribution, 116.

Verey, its discommodities in wounds of the bid, 359.
Venum, its bites and stings, how to be cured, 783.
Vomits, their force, 38. their description, 277.
Vomiting, why it happens in the Colicke, 106. the fittest time thereof, 709. to make it scarce, ib.

Voyages and other employments wherein the Author was prefent, of Thurin, 1,423. of Marcellus & bow Brittany, 1,44. of Perpignan, 1,45. of Landreth & Bologne, 1,46. of Germany, 1,47. of Denmark, 1,48. of the north of the back, how the middle of Grace, 1,66. to Rome, ib. to Dronx, 1,66. of Montecristo, 1,67. voyage of Flanders 116. of the slumber, 1,73. voyage of the Senlis, 1,72. voyage of Bayon, 1,73.

Uracus, 134. Urecters, their substance, 1,23.

Urine, its blouses by disinfection of the thigh-bone, 6,6. suppression thereof how deadly, 6,6. how it happens by scarlatina, 6,8. by external means, 6,8. things unprofitable in the whole body, purged thereby, 6,8. the differences and causes thereof, 68. the cure, 68. finding thereof how helped, 740. acceptable for such as cannot keep it, 877. Urines of such as have the plague sometimes like those that are in health, 3,2. Utell, a strange fish, 66.

Uvac, 146. Uvea tunica, 183.

Veneris, 99. its causes, & cure, 639. the cure, 640.

Vesiculæ, their description, 1,49. their defcription, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.
Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.

Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.
Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.

Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.
Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.

Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.
Vesiculæ, their description, 1,49. their description, 1,47. their description, 1,50. their description, 1,50. their description, 1,50.

W

Warts of the neck of the womb, 95. their cure, 356. Watch to be made for the skin, 709. Wafers, their stoning how helped, 330. Watching, and the discommodies thereof, 37. Water, its qualities, 6, left in time of plague, 8,1.
The Table.

| 765. how generated, and their differences. ibid.       |
| 766. signs, the cure. 767. Wounds may be cut away with hot water. 52       |
| Wounds formed near in the parts, 333,134. Wounds put into bow cured, 78. |
| Wounds of the head and brain, of the body,            |
| Avenging, why hard to be cured, 427.                |
| Wounds, what, the divers application and division of |
| them, 321, their causes and signs, 322, prove         |
| no stiches, 33, small ones sometimes mortal, 324.    |
| their cure in general, ibid, to stay their bleeding |
| 328, to help pain, 329, why some die of some ones,   |
| and others recover of great, 351, whether to cure in |
| children or in old people, 25.                      |
| Wounds of the head, see Fractures. Of the furious   |
| loose skin thereof, 360. their cure, 361. of the    |
| face, 376, of the eye-brow, ib. of the eye, 378,   |
| of the cheek, 38, of the nose, 384, of the tongue,   |
| 385, of the ears, 386, of the neck and throat,      |
| ibid, of the meaon and Gut, 387, of the cheek,      |
| 388, of the heart, lungs and mediastin, ibid, of the |
| spine, 389, what wounds of the lungs cured, 392.    |
| of the Epigastrium or lower belly, 393. of their    |
| cause, 397 of the Kall and fat, 398, of the veins,  |
| and sinew, and particles, 399, of the oesophagus,   |
| and liggers, ibid, of the nerves and nervous parts, |
| ibid, of the joints, 403, of the ligaments, 404.    |
| Wounds contused must be brought to suppuration, 407 |
| Wounds made by gun, that are not burn, never       |
| must be outerized, 408, they may be treated with   |
| laudatives, 410, why hard to cure, ibid, why they   |
| look black, 413, they have Echur, ibid, why so deadly, |
| 415, in what place not easily cured, 417, their     |
| division, 418, ibid, how to be dressd at the first,  |
| 419, if cut out, ibid, on the second time, 424, they |
| all are cut out. 425 Wounds made by arrows how      |
| difficulty to be made by gun-shot, 428.              |
| Wretf, and the bones thereof, 318, the division   |
| thereof, and the cure, 428.                         |

FINIS.